

CURRENT NEWS

May 23, 1914

Investigation of the Colorado River Shows Storage Dams Are Necessary

Private Companies Discover That by Their Use More Than a Million and a Quarter Acres Could Be Irrigated

Investigations of dam sites on the Colorado River made by private companies with a view toward irrigation developments indicate that, in addition to the land now served by canals, more than 1,250,000 acres additional could be brought under irrigation by constructing storage dams on the upper Colorado and its tributaries. All of this acreage is said to be rich bottom land, so situated that a wide variety of profitable crops could be grown. Of the total area mentioned, about 1,000,000 acres would be served by gravity distribution systems, while about 300,000 acres would require pumping plants to put water in the canals, the lift, however, being nowhere in excess of 80 ft.

The sum of \$50,000 which was appropriated in March of this year for the use of the Reclamation Service in investigating storage units and irrigation systems which might be developed on this river is expected to result in a favorable report on a storage capacity at several points totaling between 6,000,000 and 7,000,000 acre-ft. Some of the sites believed to be worth development have not yet been investigated by private companies, but a site on the San Juan River, another at Kremling on Grand River, and a third in northwestern Colorado on Green River, all tributary to the Colorado, have been examined with a view to development. Of these the last named is by far the largest, and is located in what is known as Ladore Canyon. Here the river banks are such that a dam more than 100 ft. high can be built which will have a water-level length of 500 ft. and yet will be only between 700 and 800 ft. long on the crest. The storage available is placed at 3,000,000 acre-ft.

These several storage units would be independent of the canal systems and would be used only to store water for regulating the stream flow. The probable points of diversion would be at Needles, Parker and Laguna, and would serve lands in the Yuma and Imperial valleys. These dams would make it possible, in the opinion of Louis C. Hill, the Government consulting engineer, who supplied the foregoing information, to irrigate considerable tracts of land in Mexican territory, although the acreage mentioned is wholly within the United States.

Service Inaugurated on Panama Canal

Three barges laden with sugar reached Cristobal May 19 after passing through the Panama Canal, thus inaugurating the commercial use of the canal. The sugar came from Hawaiian steamships and was transferred to other vessels. The opening date for barges was advanced to relieve the congestion caused by the suspension of service on the Tehuantepec Railroad in Mexico. It is not definitely announced when the canal will be opened to merchant shipping.

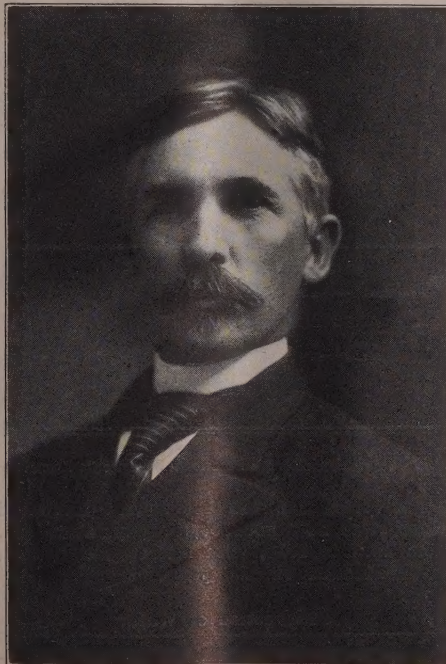
To Hold City Planning Conference May 25 to 27

The National Conference on City Planning will be held in Toronto, Canada, May 25-27. Fifty official city-planning commissions in the United States and Canada will be represented.

Report of the Annual American Waterworks Association Convention Held in Philadelphia May 11-15

More Than 900 Members and Guests Attend—Discuss Filtration, Disinfection of Water, Distribution, Waterworks, Constitutional Amendments—New Officers Elected

Nine hundred members and guests attending the thirty-fourth annual convention of the American Waterworks Association, held at the Bellevue-Stratford Hotel, Philadelphia, May 11-15, realized the significance of the remarks of President Robert J. Thomas when he spoke of the passing of the old-time waterworks superintendent. To those who have observed at close range the activities of recent years in the waterworks field it is apparent that there has been a gradual transition in the type of man who is charged with the delivery of a



George G. Earl

supply of water to a city. The first indications of the change came with the advent of the modern filter, and since then the scope of the superintendent's work has become even more broad. In the early days the superintendent was concerned only with the quantity of water, but now he must guard its quality. The result, of course, has been an increasing demand for the technically trained executive.

The larger aspect of the waterworks problem of to-day is reflected in the subjects of the papers presented at the convention. It is true that many of them dealt specifically with the various problems of maintenance and distribution, but there were others on filtration and the various forms of after treatment, water analysis, pollution and its relation to public health and financial matters, such as rates and valuation of public utilities. These are subjects which were not included in the category of the old-time waterworks man and they indicate—just as the formation of a special sanitary and laboratory section at the Philadelphia convention indicates—the trend of development in this important field of engineering work.

The Philadelphia convention was notable for its large attendance and for the excellent facilities which had been provided for the technical meetings and for the manufacturers' exhibit of equipment and supplies. From opinions expressed by many of the members and associate

members the belief was general that the exhibit was the best which the association has held. The record of attendance—884 members, associate members and guests having registered up to noon on May 14—surpassed the 630-mark established at the Minneapolis convention last year. The secretary's books for this year's meeting showed 325 active members, 173 associate members and 386 guests. In no sense could the convention be characterized as a meeting of Eastern men. The East was well represented, but there were substantial delegations from the West, Middle West and South and from Canada.

For another year at least the association will have no permanent headquarters. Although a majority report, signed by Allen Hazen, George H. Felix, Prof. W. P. Mason and Rudolph Hering, recommended a New York office at an estimated cost of from \$2500 to \$3000, including the services of a secretary, the meeting adopted the minority report of Charles B. Burdick, which was opposed to the change. To carry out the proposed program would have meant an increase in annual dues from \$5 to \$8, and it was felt that this extra burden was a little too heavy to bear at the present.

Contrary to the expectations of some of the members, no announcement was made of the formation of additional local sections of the association, as provided for in the new constitution adopted at Minneapolis last year. A New York section was formed early this year.

Committee Reports

A final report was submitted by F. C. Jordan, of Indianapolis, chairman of the committee on tabulation of rates. It comprises 130 pages and deals with rates for 600 cities; other subjects considered were free water and electrolysis, metering, and private fire service. In reporting for the committee on water consumption, E. S. Cole, of New York, stated that replies had been received from 150 cities. One of the objects of this committee is to determine the relation between the amounts of water consumed for domestic, industrial and commercial use. Progress is being made in securing a uniform specification for cast-iron pipe by the American and New England waterworks associations.

New Officers

The officers elected for the ensuing year are: President, George G. Earl, superintendent, Sewerage and Water Board, New Orleans; vice-president, Nicholas S. Hill, Jr., consulting engineer, New York; treasurer, James M. Caird, consulting engineer, Troy, N. Y.; trustees, Allen Hazen, consulting engineer, New York, and A. W. Cuddeback, superintendent, Passaic Water Company, Paterson, N. J.

Supervision of Filters

Following the plea in the paper of Dr. Allan J. McLaughlin on "Sewage Pollution of Boundary Waters" for more careful everyday supervision of purification plants (see page 588), a number of members indicated that there is a rapidly growing demand for supervision and analytical data. At Rahway, N. J., the pumping engineer has been trained to make the daily platings for bacterial tests, media being furnished by a consulting engineer to whom daily reports and check samples are sent.

Dr. E. Bartow suggested that several small cities employ a trained analyst conjointly. In some cases men already in the department can be trained to make the simpler tests. Commenting on the practice of state boards of health in ordering plants to send samples at weekly intervals to approved chemists, J. M. Caird said that too many things can happen in a week's time to make such service of much value. There is temptation on the part of the superintendent to insure a good report by extra dosing just before samples are taken. Mr. Caird favored close sampling for the purpose of better and more economical operation.

F. A. Dallyn emphasized the point by reciting the experience at Windsor, Ont., where an outbreak of typhoid was followed by a close examination. The hypochlorite plant seemed in perfect operation. Finally samples for over a day were taken at ten-minute intervals. The water, although badly polluted, showed sterile except at 3 p. m. It was found

Hodgkins, and 8 per cent was suggested. J. N. Cnester contended for the higher rate and explained the fallacy of comparative costs by recounting the extremely low expense of \$22,000 for the Mount Vernon (N. Y.) 1.4-acre slow sand plant installed with 75-cent labor twenty years ago. Only by close analysis can conclusive figures be obtained.

In a written discussion George W. Fuller of New York stated that for supplies requiring coagulation to bring about satisfactory purification there is no room for doubt as to the superiority of mechanical filters under all ordinary circumstances. Mr. Fuller can see no reason for taking serious exception to Mr. Johnson's conclusions "that in the efficient and economical solution of the vast majority of water-purification problems in the United States the rapid sand filtration process is superior to the slow sand process."

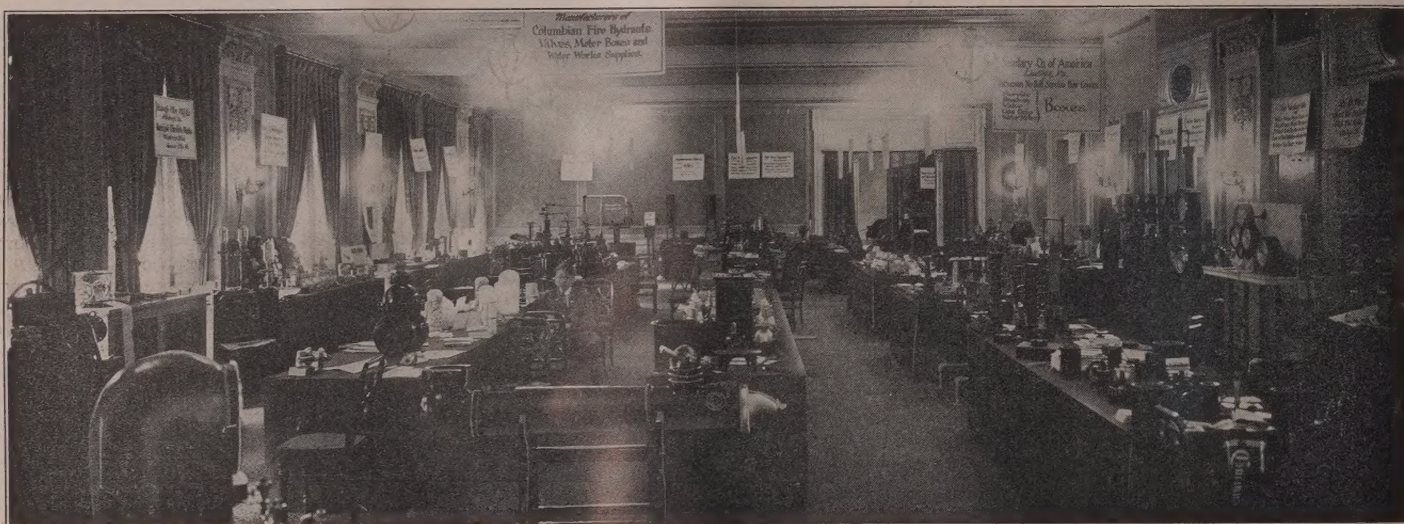
Joseph W. Ellms presented statistics showing that the typhoid-fever death rate in Cin-

Waterworks

H. C. Hodgkins' paper suggesting dual water supplies (see page 588) was championed by R. A. Maignen on the ground that much desirable water from insufficient sources is being unrun away entirely. Other members expressed themselves strongly against the idea on account of the impossibility of getting people to observe the proper precautions, and because industries also require treated water free from turbidity and other qualities objectionable from the domestic standpoint.

Concerning J. M. Diven's paper on "Use and Benefits of Pressure Recording Gages," W. E. Hazeltine sent a discussion outlining a simple electrical attachment which is actuated by the fire alarm and records on the pressure gage the exact time of turning in the alarm.

J. W. Ackerman spoke of using an air tank near an elevator connection to reduce the ragged chart records. Mr. Diven took ex-



Exhibition Held in Conjunction with the American Waterworks Association Convention

that the attendant was in the habit of cleaning the tank at this time of the day and, to do it, shut off the dose for twenty minutes.

Filtration

"Present-Day Filtration Practice," a paper printed in the "Journal" and presented at the meeting of the New York section some time ago (see page 589), brought out the liveliest discussions of the convention. The comment hinged on comparative costs. John H. Gregory gave numerous data to show that the difference in the costs in Mr. Johnson's paper for slow sand and rapid filters was too great. The slow sand filter costs, he said, should be reduced and the rapid filter costs increased.

Robert Spurr Weston concurred in the above idea, stating that he felt both systems had a place. Rapid filters should be considered for flashy waters carrying turbidities over 30 and color above 50. Under these figures water was often hard to coagulate, as no nuclei existed around which to start coagulation. Addition of clay then became necessary. In his experience the average cost of rapid filters was \$14,500 per million gallons and of slow sand plants \$100,000 per acre. If sterilization is used for the slow-sand effluent the rate of filtration can easily be increased to bring the costs together. However, he believed the field was widening for rapid filtration.

John C. Trautwine, Jr., pointed out that artificially high unit costs may easily be obtained by taking contract prices instead of reasonable estimates or actual costs.

Charles B. Burdick called attention to the discrepancy in actual operation between the rated capacity and output. Two-thirds of the rated capacity is the average; hence 50 per cent must be added to get actual costs.

Five per cent for interest and depreciation was considered entirely too low by H. C.

cinnati from 1901 to 1906, with unfiltered water, was 58.7 per 100,000 population and from 1908 to 1913, with filtered water, 10.2, or a reduction of 82.6 per cent.

Disinfection of Water

Previous to the inspection trip on Wednesday to the Torresdale filtration plant and the Pennypack Creek sewage-disposal works, illustrated papers were presented by Francis D. West on "Disinfecting 200,000,000 Gallons of Water Daily" (see page 585) and by George E. Datesman on a "Brief Review of Sewage-Disposal Works in Some European Cities and Comparison with the Pennypack Creek Works" (see page 587). Discussing Mr. West's paper, W. F. Monfort stated that he was of the opinion that chlorine diffused faster than bleach; hence practically all portions of the water were reached and few aftergrowths took place. At Exeter, N. H., said Robert Spurr Weston, the relative efficiency of bleach and liquid chlorine was 5 and 6 to 1. Compared with aluminum sulphate, 0.4 part per million of disinfectant was equivalent to 17 parts of coagulant. Furthermore, the color was all removed with the chlorine, while 20 parts were left by the alum treatment. The water was full of colloidal vegetable matter almost impossible to coagulate.

"The Efficiency of Household Filters in Chicago," a paper by Dr. Arthur Lederer and Frank Bachman, was read by the secretary. It detailed analytical tests on eighty-four household filters in Chicago.

That sterilization by ultra-violet rays will shortly receive much attention was the opinion expressed by many following the paper on the subject by Max von Recklinghausen (see page 586). S. T. Powell concludes that 75-kw-hr were required for 1,000,000 gal. of water.

ception to the practice on account of its vitiating results of water hammer, which should be eliminated.

Mr. Ackerman's paper on "Testing of Check Valves" (see page 591) showed that for sanitary protection single clapper valves are useless. On this point Mr. Dallyn said that the Ontario Provincial Board of Health does not allow an auxiliary supply to be connected with the domestic supply.

Waterworks of antiquity were shown in lantern slides by Louis L. Tribus. Of special interest were the grooved concreted slopes on Gibraltar built to precipitate the moisture from air. They are not entirely successful.

Dr. William P. Mason entertained the members with views of algæ and modern methods of camp sanitation.

J. W. Ackerman gave a résumé of the suit against Moravia by Auburn, which was brought under the penal code under clauses relating to nuisance.

Laboratory Control

Dr. Edward Bartow presented a paper on "Laboratory Control of Water Supplies," illustrating it with views of small rooms fitted up in plants in Illinois. The operators are pleased with the results obtained, he said, and none would do without the laboratory, once installed. The Illinois Water Survey has made up typical plans and prepared lists of chemicals and materials necessary.

Paul Hansen presented a paper on "An Undeveloped Field in Waterworks Management." It referred to the retainment of consultants for the operation of small plants and is along the line of a paper given by Mr. Hansen before the Illinois Society of Engineers (see Engineering Record of Feb. 15, 1913, page 186).

W. M. Booth gave numerous observations and analyses of water from his last twelve years' experience, interpreting the value of nitrites and nitrates in detecting pollution.

S. T. Powell's observations on the effect of ozone upon algae growth (see page 590) indicated that only certain forms are readily removed by direct oxidation, while there is an increase in the odor that can be removed only after complete oxidation of the organic content of the water.

"The Individuality of Public Utilities, Particularly Waterworks" was the subject of a paper of much value by W. E. Miller in pointing out ranges of costs and conditions in Wisconsin as encountered by the commission.

Distribution Systems

Nicholas S. Hill, Jr., presented an exhaustive description of the methods used to design pipe distribution systems. Discussion following the paper indicated many differences of opinion and the fact that most of

at the Bellevue-Stratford, a theater party at Keith's, and a smoker at the Hotel Walton. The delegates were the guests of the city of Philadelphia on a boat excursion to the Torresdale filter plant and a shad dinner at Washington Park. A trip of inspection to the Wilmington (Del.) filter plant was made, and after the convention adjourned the members left to spend the week end at Atlantic City. Cincinnati was chosen for the next convention.

Colorado River Menaces Imperial Valley

Once again the troublesome Colorado River is perplexing the minds of engineers to keep it in bounds. Since the great break of 1906, which turned the river upon its wild rampage over the Imperial Valley, cutting out the channel of the New River 90 ft. deep in the soft silt soil and flooding the dry bed of the Salton

William Mulholland Honored by University of California

At the fifty-first commencement on May 13 the University of California conferred the honorary degree of doctor of laws upon William Mulholland. This is not only a signal honor to Mr. Mulholland personally but also to engineering achievements. The degree was conferred by Benjamin Ide Wheeler, president of the university, to whom the candidate was introduced by Charles Derleth, Jr., dean of the College of Civil Engineering. The following words were used in the introduction:

"On behalf of the engineering faculties I present to you a man singularly endowed by those qualities which mark the great engineer. A native of Belfast, Ireland, reared in Dublin, he matriculated for life's course by going to sea, a boy of fourteen. He left the fatherland, crossed our Isthmus, and upon a sailing vessel he entered the Golden Gate in 1877. Ever



Temporary Trestle Built Across Mouth of Cut



Inroads Made by the Colorado on Railroad Tracks

the distribution main problems have to do with additions.

In discussing John W. Alvord's paper on "Equitable Hydrant Rentals and Better Methods for Apportioning Fire Protection Costs" (see page 586) many voiced the opinion that the formula proposed gave too low a rate. J. N. Chester said he preferred a frontage basis instead of a pipe-size basis, as proposed by Mr. Alvord.

N. W. Akimoff explained briefly his reasons for proposing a new theory of the Pitot tube.

L. Van Gilder, superintendent of the Atlantic City Water Department, extended an invitation to visit the system and see the laying of the new 26,000 ft. of 48-in. cast-iron force main across the salt marsh above ground. He presented a paper by title on the subject (see page 590).

The water supply of Wilmington, Del., was described in a paper by E. M. Hoopes, Jr., and J. M. Caird. As the paper was printed in the "Journal" and a trip was planned to Wilmington, it was not read.

Constitutional Amendments

Amendments to the constitution offered by the executive committee and passed by the association were in substance as follows: Under the old rules an active member became an associate member as soon as he made such a change in his vocation as would qualify him for associate membership on an application for admission to the association. Under the new rule one remains an active member but cannot hold an elective office. Another amendment provides for the election of the vice-president in the same manner as the president and treasurer are elected. By a third change a majority instead of a unanimous vote of the membership committee, subject to review by the executive committee, effects the election of candidates to membership.

The entertainment portion of the program, arranged by the Waterworks Manufacturers' Association, included a reception and dance

Sink, and leaving an inland sea of 100 sq. miles in extent, the Colorado has been behaving nicely.

During the early part of April, 1914, it was discovered that at a point below Hanlon Heading, which is the intake for the Imperial Valley irrigation project, the river had started to cut into its western bank, making a small bay 1200 ft. wide and gradually eating into a protecting levee upon which lay the tracks of the Southern Pacific Railroad running between Calexico and Yuma.

Little attention was paid to the cutting until one night a Southern Pacific train crew reported that 1000 ft. of their track had gone into the water and that the river was rapidly tearing into the bank and threatening to cut a new channel toward the Imperial Valley. A warning was sent to all the valley towns, and in a few days \$30,000 was raised among the people, and the Southern Pacific set to work to build a trestle across the mouth of the cut in the same manner that Chief Engineer C. K. Clark stopped the big break of 1906. President Wilson was also petitioned for aid and requested to appropriate some of the \$55,000 which remained of the old Ocker son appropriation that Congress voted June 25, 1910, to take care of the Colorado.

General William L. Marshall, consulting engineer to the Secretary of the Interior, was assigned to duty at this point, leaving April 22 to take charge of the protection work, which will be undertaken by the Government

"Vaterland" Arrives in New York

The "Vaterland" of the Hamburg-American Line, the largest ship afloat, arrived in New York City May 21. While closely resembling her sister ship the "Imperator" in construction and equipment, the "Vaterland" is of greater dimensions and is said to present many original features. The "Vaterland" measures 950 ft. in length, 100 ft. in beam and has a tonnage of 58,000. In her trial trip the "Vaterland" developed a speed of 26.3 knots per hour.

since in this Western country he has been a close student of nature, schooled solely in the great university of experience, so that now he stands before us a vigorous personality, strong, fearless, upright, sound in judgment, keen of vision, a master workman and a leader of men—the veritable pride of engineers. I introduce him further because he is an invaluable servant of our State, an acknowledged authority upon the sources, conveyance, distribution, care and use of water. I have the honor to name the chief engineer of the Los Angeles Aqueduct, William Mulholland."

Cincinnati Education Plan Adopted

The "Cincinnati plan" of a five-year co-operative course in engineering has been adopted by the new college of engineering recently established by the Municipal University of Akron. Fred E. Ayer has been appointed professor of civil engineering and dean of the college of engineering.

Baltimore Section of American Society of Civil Engineers

On May 6 a Baltimore section of the American Society of Civil Engineers was formed. The meeting at Arundell Hall was arranged by Francis Lee Stuart and the following officers were elected: President, J. E. Greiner, consulting engineer; first vice-president, Francis Lee Stuart, chief engineer, Baltimore & Ohio Railroad; second vice-president, L. H. Beach, colonel, Corps of Engineers U. S. A.; and secretary-treasurer, Harry D. Williar, Jr., assistant engineer, Paving Commission. The following directors were elected: H. D. Bush, general superintendent, Carnegie Steel Company; B. T. Fendall; B. P. Harrison, assistant engineer, State Roads Commission; Calvin W. Hendrick, chief engineer, Baltimore Sewerage Commission; Oscar F. Lackey, harbor engineer; M. A. Long, architect, Baltimore & Ohio Railroad; and A. W. Thompson, general manager, Baltimore & Ohio Railroad. The first meeting of this section was held May 20.

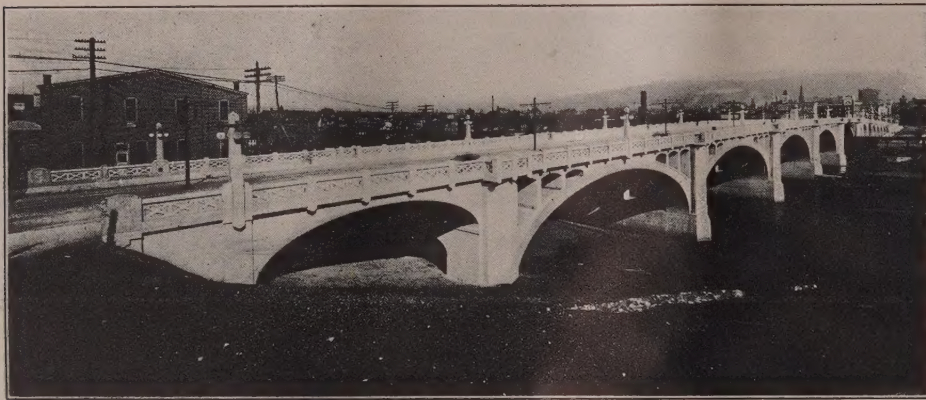
Bridge Cofferdam Collapses at South Norwalk

One of the cofferdams for the substructure of the reinforced concrete highway bridge spanning the Norwalk River between South Norwalk and East Norwalk, Conn., collapsed on May 20. R. E. Dewar, engineer-superintendent for the McHarg-Barton Company, contractors, who was at the bottom of the pit, was killed.

The cofferdam was of interlocking steel sheet piling 35 x 60 ft. in plan, and according to a statement given to the Engineering Record by Mr. Barton, precautions had been taken to brace it securely on the inside. The pit had been excavated to grade and the work of concreting was about to commence when the structure collapsed. Mr. Barton states, however, that no concrete buckets had been lowered into the hole, so that none of the timbering could have been displaced in this way. Those on the

Dedicate Schuylkill River Viaduct at Reading, Pa.

Under the auspices of the Reading Chamber of Commerce the new Schuylkill viaduct at Reading, Pa., will be dedicated May 23. The structure is made of reinforced concrete and was erected at a cost of \$610,840, which includes the payment of property damages, the replacing of gas and water mains, sewers and other incidental expenses. In addition to spanning the Schuylkill River, the viaduct also bridges the Schuylkill Canal, the Wilmington & Northern, and West Reading & Pennsylvania railroad tracks, a total distance of 1350 ft. It consists of a retained and reinforced-concrete beam and slab approach, eight 48-ft. arches, five 110-ft. elliptical arches and one 48-ft. elliptical arch. The width of the structure is 80-ft. and the greatest height above the water is 36-ft. The roadway is paved with creosoted wood block and carries two stand-



New Viaduct across Schuylkill River at Reading, Pennsylvania

work say that the four walls of the structure closed up like a smashed box. The bottom of the excavation was 28 ft. below low water and the tide was at the ebb when the failure occurred. The steel sheeting was in 50-ft. lengths and the material was silt underlaid by gravel.

Contrary to press reports the work did not involve the use of compressed air, but was carried on entirely in the open. The cofferdam had been sunk for one of the piers for a bascule span.

Notes on City Waste Disposal

Collection of garbage without "breaking bulk" and disarming sentimental objections by construction of pleasing structures architecturally were the points emphasized by John T. Fetherston and Irwin S. Osborn at a recent meeting of the Western Society of Engineers. Motor trucks with and without trailers are coming more and more into service.

In Paris uniform garbage cans are provided with sliding lids and have an attachment which engages a lid-opening device on the wagon, permitting the cover to be raised only when the can is being dumped.

Mr. Fetherston predicted the next development in utilization would be to recover the coal from ashes. In fact, a Boston company is now seriously considering the proposition. In New York coal comprises from 20 to 30 per cent of the ashes, while in Chicago the figure rises to 35 per cent.

The value of education in city waste disposal at Chicago was indicated by the announcement that five civic bodies in the vicinity of Thirty-ninth Street have passed resolutions asking that an incinerator be located at the Thirty-ninth Street pumping station and lakefront to take care of the local garbage. Steam generated would be utilized at the pumping station. This is said to be the first time civic bodies have asked that a point in their own vicinity be set aside for garbage treatment.

ard-gage electric-railway tracks. The structure is lighted by boulevard arc lamps, and twenty-six clusters, of four tungsten electric lights each, are carried on concrete posts monolithic with the balustrade on each side of the structure. The new structure replaces an iron bridge which was in use since 1884.

The total cost was raised considerably by the payment of heavy property damages. The new concrete viaduct is much wider than the old iron bridge which it replaces, and much valuable abutting private property had to be taken over by the county to make possible the erection of the present structure. The total cost is divided as follows: Contract price, \$325,910; cement, \$27,774.26; extras, \$15,934.14; engineers and stenographer, \$23,198; property damages, \$173,371.91, and paving and replacing gas and water mains and sewers, \$44,651.72.

Summary of Carnegie Foundation Report

The eighth annual report of the president of the Carnegie Foundation for the Advancement of Teaching, which was made public May 19, shows a total endowment of \$15,325,000 and an expenditure for the year ended Sept. 30, 1913, of \$658,431. Of this \$519,440 was distributed in retiring allowances to professors and \$80,949 in pensions to their widows, a total of \$600,390. Thirty-three allowances were granted during the year, making the total in force 403, the average annual payment to an individual being \$1703. The total distribution from the beginning has been \$2,936,927. The educational work of the Foundation was separately endowed in January, 1913, by a gift of \$1,250,000 from Mr. Carnegie.

In connection with the Foundation's work as a center of information concerning pensions, the president discusses pension systems that are maintained by half a dozen colleges, the development of new systems at Brown University, the Rockefeller Institute, and the American Museum of Natural History, the

new federated pension system of the English universities, and the proposed system for the clergy of the Episcopal Church. Among pensions for public school teachers the report discusses the misfortunes of the New York City system, and commends the plans of the new State system in Massachusetts.

Much of the report is devoted to the development of the educational work of the Foundation into a separate division of educational inquiry. Its recent work includes a study of education in Vermont at the request of the Vermont Educational Commission, of legal education at the request of a committee of the American Bar Association, and of engineering education at the request of a joint committee representing the national engineering societies.

The report further presents a study of the financial status of college teachers as compared with the situation presented in a similar study published five years ago. The ordinary salary of a full professor in the institutions associated with the Foundation is now \$3000. During the last five years the salaries of instructors have risen by about \$80; those of junior professors show a gain of from \$120 to \$225; those of full professors show an increase from \$125 to \$350.

Reorganization of Patent Office

The committee on patents of the House of Representatives has reported back to the House with the recommendation that it pass a bill reorganizing the Patent Office. The measure has the approval, too, of the Commissioner of Patents, Hon. Thomas Ewing. The bill follows the lines noted editorially in this journal last week. The greatest and most important change is the equalization of the number of first, second, third and fourth assistant examiners, numbering at present 63, 73, 88 and 110, respectively. The bill puts 86 in each grade, thus making it possible to keep more men of long experience in the office.

The number of examiners-in-chief is increased from three to five, the chief clerk is authorized to act as principal examiner, and the number of low examiners is increased from two to five. There are also certain rearrangements.

In all the increase in force amounts to only fifteen and the annual increase in salary to slightly more than \$61,000.

Those who have studied the measure are unanimous in urging its passage.

Detroit Engineers to Aid in Civic Affairs

That the public may benefit by the best engineering thought and more capably decide municipal building questions is the plan of the Detroit Engineering Society.

At a luncheon in the Edelweiss Cafe given by its various committees Friday night, the society, through Chairman Warren S. Blauvelt of the civics committee, discussed the relations of the society to municipal problems. Chairman Blauvelt advocated a closer study of municipal problems in engineering and co-operation with city engineers in educating the public in municipal construction work.

New Mexican Dam Breaks

Thousands of acre-feet of water stored in the big Hebron reservoir, at Maxwell, N. M., were lost and damage amounting to \$15,000 was done to the dam when a 200-ft. section of the dam was carried away by the flood in the Sugarite, which the dam crosses. Work of repairing the dam, which is owned by the Maxwell Irrigated Land Company, will begin at once.

There has been a heavy flow of water in the Sugarite all spring, and enough water is stored on the Maxwell tract to carry farm crops through the year. The break in the dam will not interfere with farming operations in the least. A temporary dam to divert the natural flow of the stream will be built.

Forest Products Exposition in New York City

The first New York forest products exposition, which was opened to the public May 21 at the Grand Central Palace, will continue until May 30. The Government has appropriated \$10,000 for the U. S. Forestry exhibit. At the Chicago exposition, held April 30 to May 9, for an account of which see the Engineering Record for May 9, the money was received too late to be of use, but it has been utilized in the New York show for additional features. The show is proving extremely attractive during these hot days, owing to the cool sweet smell of the pine and other woods and the absence of noise, which is noticeable as compared with the usual show of this type.

The U. S. Forestry Service has brought exhibits from the forest-products laboratory at Madison, Wis., which include models showing shrinkage, wood waste and methods of utilization, a model of a drying kiln, specimens of wood into which nails, drift pins and bolts had been driven and tested to failure, and numerous other testing devices. The various uses of waste material, such as sawdust, in making alcohol; soft wood trimmings and slabs, for paper, and hard wood edgings and slabs for making lime and charcoal are extremely interesting.

The exhibition, aside from having an interest to the manufacturer and forestry man, is one of great educational value and especially worthy of the patronage of engineers.

Pennsylvania's Electrification at Philadelphia

Preliminary construction on the electrification work of the Pennsylvania Railroad at Philadelphia has been started. The single-phase system has been adopted, mainly because the type of overhead construction and method of transmission permit the use of any style of tractor.

Electricity will be supplied from an overhead catenary system carried on supports of the cross-catenary type. In this arrangement no structural-steel bridges are used except the anchor bridges at half-mile intervals, but instead a span wire of heavy cable is carried across the tracks between steel poles at 300-ft. intervals, and from this is suspended a longitudinal catenary with a secondary messenger wire and a bronze contact wire. This will be the first use in the United States of the cross-catenary system over a four-track main line.

Energy will be obtained from the Philadelphia Electric Company, the contract calling for an initial minimum of 3750 kw to be ready next September. The railroad will erect its own substation opposite the Christian Street plant of the electric company.

Department of Agriculture Studying County-Road Systems

With a view to effecting a standardization of local road management, the Division of Road Economics of the United States Department of Agriculture, under the direction of J. E. Pennybacker, formerly secretary of the American Highway Association, has instituted studies of the systems employed in 200 counties selected from a list obtained from State and county authorities. By weighing the merits of the citizen-labor, convict-labor, bond-issue and liquor-license systems, it is expected that a more efficient general method may be evolved. The data obtained will be incorporated into a report from which will be prepared a series of constructive bulletins dealing with organization, finance, construction, maintenance and traffic.

Two other activities are planned for this division, a field study of convict labor in many branches of work, and a statistical census of road mileage, revenues and expenditures for the whole United States.

New Construction Activities

Anxiety for more business prevails among the various rolling mills. The structural orders called for 23,000 tons last week. Prices still continue low in the metal markets. Proposals for two sections of the New York subway work were opened. A slight increase in bridge construction work was felt. Bids for the new Boston harbor pier, which it is estimated will cost more than \$1,000,000, have been asked for.

Highways and Paving

Ohio highway work is being pushed ahead rapidly. Contracts amounting to more than \$175,000 were awarded the past week, and bids have been asked on more than \$400,000 additional. At Columbus, Ohio, contracts for \$100,000 worth of new paving were let. An item of interest comes from California, where bids are desired for 37 miles of Portland cement concrete road work. The State highway commissioners of Connecticut have awarded \$88,110 worth of State road work. Bids are desired at Welland, Ont., for 34 miles of macadam road. Contract was awarded at St. Helena, Ore., for the Columbia highway work at that point, involving an expenditure of \$280,751. Bids are desired for \$930,000 worth of road bonds at McKinney, Tex.

Water and Sewers

It is proposed to construct a \$300,000 waterworks at Linden, N. J. A new storage reservoir at Santa Cruz, Cal., to cost \$150,000, has been recommended by a committee appointed to investigate water-supply conditions there. A \$400,000 rapid sand filtration plant is being considered by the city of Wheeling, W. Va. Bids are desired for a \$50,000 waterworks at Portsmouth, Ohio. Bids on the Ocean Street sewer system, of St. Paul, Minn., estimated at \$70,000 are desired. Bids for \$150,000 worth of Waterbury, Conn., water bonds are desired. The lowest bid for sewer work at Brighton, N. Y., came to \$32,128, and the minimum figure submitted for a sewage disposal plant at the same place came to \$13,738. Contract was awarded for sewer work at Moline, Ill., involving an expenditure of \$121,119. Permission has been granted the sewer commissioners of Southington, Conn., to construct a \$175,000 sewer system. Plans are being prepared for a waterworks plant at Lackawanna, N. Y.

Bridges

Bids are desired for constructing a bridge over the Broad River, at Danielsville, Ga. The bridge will consist of five piers and four steel spans, 4876 ft. in all. Contract for constructing a concrete bridge at Piqua, Ohio, was awarded at \$94,704. Bids will be received at Cleveland, Ohio, until June 3 for \$650,000 worth of Brooklyn-Brighton Bridge bonds. Bids are reported desired at Nebraska City, Neb., for constructing two bridges there. New bids are desired for constructing a 250-ft. steel span bridge over the Chateaufort River at Laberge, Que. Bids are desired by the Commissioner of Indian Affairs, at Washington, D. C., for a steel highway bridge across the Colorado River, at Yuma, Ariz.

Hydraulic and Kindred Development

Bids will be received for the construction of a pier at Boston, estimated at \$1,000,000. Bids for 600,000 cu. yd. of earth excavation, 18,000 cu. yd. muck ditch, and other work on a drainage and levee project, at Quincy, Ill., are desired. Bids for constructing a \$475,000 irrigation system at Barstow, Tex., will be called for shortly. It is reported that bids for a 20-mile canal are desired at Abbeville, La. Surveys are now being made to irrigate 400,000 acres of land in Quincy Valley, Washington. The lowest bid for valves for the Arrowrock dam came to \$64,317. Contract for a \$111,662 river bank protection project at Augusta, Ga., has been awarded.

Miscellaneous

The lowest bid for Section 2 of Route 20 of the Broadway-Fourth Avenue subway in New York City came to \$1,822,994. The McKinney, Bonham & Paris Interurban Railway has been formed to build a 72-mile electric line connecting Bonham and Paris, Tex. It is reported the Southern Railway is to extend its double track from Charlotte, N. C., 263 miles south to Armour, Ga. Bids will be opened June 9 for section 1-A of routes 4 and 38, a part of the Seventh Avenue-Lexington Avenue subway, in New York City. Bids are desired for a \$180,000 950-ft. tunnel under Lake Union, Seattle, Wash. Plans are being prepared for a \$500,000 insurance building at Des Moines, Ia. A \$300,000 church is to be built in Detroit. The Western Reserve Steel Company intends erecting a \$600,000 plant at Warren, Ohio. Contract for the interior finish of the U. S. Post Office, at Denver, Col., was awarded at \$482,500. Bids for erecting a \$250,000 school building at Louisville, Ky., are desired. Plans for a \$1,000,000 library to be erected in San Francisco have been accepted. The citizens of Miami, Fla., have voted to issue \$400,000 worth of bonds for civic improvements. It is reported that the Otter Tail Power Company, at Fergus Falls, N. D., will expend \$150,000 on extension work this summer.

News of Engineering Societies

The Engineers' Club of St. Louis held a meeting May 20. Captain Robert Hunt addressed the society on "Steel Rails—Their Manufacture, Inspection and Service."

The Brooklyn Engineers' Club held an informal library talk May 21. Paul H. Graef, manager for Benedict & Benedict, New York City, spoke on "Workmen's Compensation Insurance in New York City."

The Pittsburgh Section of the Illuminating Engineering Society held its May meeting at Nela Park, Cleveland, Ohio, May 22. C. L. Dows presented a paper on "The Latest Developments in Mazda Lamps."

The New York Section of the Illuminating Engineering Society held a meeting May 21. "The Lighting of the New Lord & Taylor Store" was the subject of a paper by Bassett Jones and W. H. Spencer, assisted by Edward E. Ashley, Jr.

The American Institute of Consulting Engineers, Inc., will hold a dinner meeting in New York City June 11. At this time the question of a memorial to Alfred Noble and the consideration of changes in the constitution and by-laws of the Institute will be taken up.

The Franklin Institute of the State of Pennsylvania held a meeting in Philadelphia May 20. The Elliott Cresson medals were presented to Dr. E. F. Smith and Dr. Orville Wright. Addresses were made by Dr. Smith on "Scientists from the Keystone State" and by Dr. Wright on "Stability of Aeroplanes."

The Society of Engineers of Eastern New York held a meeting May 13. John T. Cade, vice-president of the Federal Signal Company, delivered an address on "Railroad Signaling." Officers were elected for the ensuing year as follows: President, F. E. Crane, Amsterdam; vice-president, Enrique Toreceda, Albany, and treasurer, Robert Reid, Schenectady.

The Municipal Engineers of the City of New York and the Brooklyn Engineers' Club of Brooklyn combined for an excursion May 16. They were taken by the Conway Towing Company, in tugboats, up the East River and through Long Island Sound to the Phoenix Sand & Gravel Company at Hempstead, L. I., where an inspection of the plant was made.

The Western Society of Engineers was addressed May 18 by John T. Fetherston and Irwin S. Osborn on "The Disposal of City Wastes." Slides made from photographs taken on a recent trip abroad by these men were shown. On May 25 D. P. Gaillard will

present a paper on the "Universal Use of Electricity on the Panama Canal" before a joint meeting of the Electrical Section and the Chicago Section of the American Institute of Electrical Engineers.

Personal Notes

S. B. Howe has been reappointed city engineer of Sioux Falls, S. D.

G. E. Hubink has been appointed city engineer of Beloit, Wis., to succeed Robert Caldwell.

W. W. Wiard, of Syracuse, N. Y., has been elected president of the Syracuse Intercepting Sewer Board.

S. R. Fisher, assistant city engineer of Springfield, Ohio, has been elected city engineer to succeed C. E. Phillips.

Frank H. Constant has been appointed to the chair of civil engineering at Princeton University, made vacant by the resignation of Professor McMillan.

S. B. Harding, formerly consulting engineer and director of the Modern Steel Structural Company, of Waukesha, Wis., has resigned from that company.

P. T. Simons, assistant engineer of the Missouri Pacific-Iron Mountain system, Southern district, has been transferred from St. Louis to Little Rock, Ark.

Charles H. Graham, chief engineer of the Bureau of Sewers, Borough of Manhattan, New York City, has been transferred to the Department of Finance.

W. C. Brennan, formerly secretary of the Hamilton (Ont.) Board of Works, has been appointed commissioner of public works and streets at Fort William, Ont.

Louis E. Degen has been appointed consulting engineer of Los Angeles, Cal., in the preparation of plans and specifications for the proposed new fire-alarm and police-signal systems.

B. F. Stewart, Jr., for the last five years city engineer of Parkersburg, W. Va., has resigned to take effect June 1. Mr. Stewart has accepted a position with R. C. Gillespie, at Sierra City and Nevada City, Cal.

Albert A. Krieger, of Louisville, Ky., has been appointed chief assistant engineer of the Louisville Water Company, in charge of the filtration plant. Mr. Krieger has been in charge of this particular work for some time.

P. E. Harroun, consulting engineer, of San Francisco, writes that his brother, D. H. Harroun, a mining engineer, operating a property near Asientos, was held in Mexico, and not himself, as was reported in these columns last week.

W. A. Farish, a construction engineer in the U. S. Reclamation Service, who resigned about a month ago to become city manager of Phoenix, Ariz., has been retained as an engineer in the Reclamation Service by Secretary of the Interior Lane. This will not interfere with his city duties.

F. C. Ewing, Jr., formerly connected with the engineering departments of the Frisco and Vandalia railroad lines, has been appointed associate professor of civil engineering at the University of the South, Sewanee, Tenn. Mr. Ewing was graduated from the University of Virginia in 1903.

A. B. Clenny, formerly assistant engineer with the J. C. Feild Engineering Company, at Dennison, Tex., has been appointed city engineer of that city. Extensive municipal improvements are being contemplated by the City of Dennison, such as paving, a sewage disposal system, and a water-filtration plant.

M. C. Cleveland, formerly engineer of maintenance of way and a member of the valuation committee of the Chicago, Indiana & Southern Railroad, has been appointed valuation engineer for the Lehigh Valley Railroad. Mr. Cleveland's duty will be to keep the valuation figures of the recent valuation of the Lehigh up to date.

John R. Brownell, safety engineer for the Pennsylvania Steel Company, has resigned to assume the newly created position of superintendent of safety for the State of California. He will also have supervision of the safety museums in San Francisco and Los Angeles. Mr. Brownell was graduated from Massachusetts Institute of Technology. With the exception of one year, he has been continuously connected with the Pennsylvania Steel Company from 1901 to 1914, the last three years being superintendent of safety.

The attention of this journal has been called to the confusion of the name of Spencer W. Stewart, of the Stewart Engineering Company, of New York, with that of an individual of similar name, recently convicted of conspiracy to defraud the State in connection with road work on Long Island. Spencer W. Stewart has not been engaged in highway work, but has been chiefly interested in the construction of railways, hydroelectric plants and foundations, and until four or five years ago principally in Cuba and other West India islands.

James B. Wilson, former bridge engineer of the Kentucky & Indiana Terminal Railroad Company, has been elected chief engineer and superintendent of the Louisville Water Company, Louisville, Ky., to succeed T. A. Leisen, whose resignation to accept the superintendency of the Detroit waterworks has been noted in these columns. Mr. Wilson was graduated from Rensselaer Polytechnic Institute in 1899. He was with the Louisville Water Company as a draftsman from the fall of 1899 to 1901. From 1901 to 1905 he was in drafting work. In 1905 he went to the Columbian Fireproof Company as general manager of its Western office. In 1907 he became chief engineer of a construction company in northern Mexico, remaining there three years, when he returned to this country as bridge engineer, as previously mentioned.

J. K. Punderford, whose appointment as vice-president of the Connecticut Company, New Haven, Conn., in addition to general manager, was noted briefly in the Engineering Record of May 16, has been identified with electric-railway work for twenty-two years. He was graduated from the Sheffield Scientific School in 1892. Upon graduation he entered the employ of the Winchester Avenue Railroad in New Haven, Conn., and assisted in equipping the power station and later operating the plant. He left the service of the Winchester Avenue Railroad and entered the expert course of the General Electric Company of Schenectady. He next entered the employ of the New Haven Street Railway in the track department and later was engaged in equipping the cars. In 1894 he resigned from the New Haven Street Railway to enter the track department of the Fair Haven & Westville Railroad, of New Haven, and in 1901 took over the supervision of the shop and line work. In the spring of 1903 he was appointed general manager of the Fair Haven & Westville Railroad, which took over all the other street railways operating in New Haven. When the electric railways in New Haven were purchased by the New York, New Haven & Hartford Railroad in 1904 Mr. Punderford continued in the same capacity, his office being made to cover all the electric-railway properties acquired by the New Haven road in Connecticut and New York State.

Obituary Notes

James J. Ferris, a civil engineer and a former member of the Jersey City Board of Commissioners, died in New York City, May 16.

George S. Bruce, a civil engineer and railroad man, died May 12 at Baltimore. He had been undergoing treatment for an injury of the foot which he sustained in Tennessee while engaged on some engineering work there. Mr. Bruce helped build the Florida East Coast Railway.

William Wainwright, vice-president of the Grand Trunk Railway of Canada, died May

14 at Atlantic City, where he had gone for his health. Mr. Wainwright was born in England, April 30, 1840, and was educated there. He entered railway service in England in 1858 in a clerical position. He came to Canada and entered the employment of the Grand Trunk in 1862.

Martin Luther Gardner, assistant to the principal assistant engineer of the New Jersey division of the Pennsylvania Railroad, died May 14, at his home in Newark, N. J. Mr. Gardner was born in Newark in 1861. He studied civil engineering at Columbia University. He was engaged in the superintendence of pier construction in the vicinity of New York City for a number of years. He had charge of track elevation work in Jersey City and also in Elizabeth for the Pennsylvania Railroad. He was a member of the American Society of Civil Engineers.

Dr. Paul Louis T. Héroult, a pioneer in the electrometallurgy of aluminum and steel, died in France May 9 from an attack of typhoid fever. He was born at Thury-Harcourt in 1863 and was graduated in 1882 from St. Barbe, Paris. He then entered the École des Mines at Paris. He attracted world-wide attention in 1886 among chemists by patenting his new aluminum process. He has visited this country many times and was employed by many of the large steel concerns here. He received numerous honors, among which was the honorary degree of doctor-engineer from the Technische Hochschule of Aachen, Germany. M. Héroult was a member of the Chemists' Club of New York, the Society of Mining Engineers of New York, the Société des Ingénieurs, Paris, and the Faraday Society of London.

Civil-Service Examinations

United States.—An examination will be held June 17 and 18 at the usual places to secure eligibles for the position of aid in the Coast and Geodetic Survey. The examination will include mathematics, practical computations, astronomy, physics, surveying, modern languages, drawing and descriptive geometry, and training and experience. The last named subject counts 20 per cent. Aids receive \$900 per annum on appointment. The highest aids receive \$1,100, when they become eligible for assistant at salary from \$1,200 to \$4,000 according to rank. Expenses are paid while on active duty. Examinations will be held June 17 and 18 to secure eligibles for the positions of mechanical and mining draftsmen. The former position pays \$1,000 per annum and the latter \$1,080 to \$1,200.

Examinations Previously Announced

Date.	See Eng. Record.
May 26—Chief of Efficiency Division, Chicago	May 2
June 1—Rodman and Chairman U. S. Valuation R. R....	April 18
June 3-4—Aid, Bureau of Standards U. S.	May 9
June 8—Examiner of Accounts, U. S. Valuation R. R....	May 9

Coming Meetings of National Engineering Societies

AMERICAN SOCIETY OF CIVIL ENGINEERS. Secretary, Charles Warren Hunt, 220 West 57th St., New York. Meets first and third Wednesday, except in July and August. Annual convention will be held in Baltimore June 2-5.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS. Secretary, J. R. Weninger, 11 Broadway, New York. Meets second Thursday in New York, except in July and August. Midsummer convention July 3 and 4, Brighton Beach, N. Y.

AMERICAN WATER WORKS ASSOCIATION. Secretary, J. M. Diven, 47 State St., Troy, N. Y.

AMERICAN SOCIETY FOR TESTING MATERIALS. Secretary, Prof. Edgar Marburg, University of Pennsylvania, Philadelphia. Annual meeting June 30-July 3, at Atlantic City.

SOCIETY FOR PROMOTION OF ENGINEERING EDUCATION. Secretary, Prof. H. H. Norris, Ithaca, N. Y. Annual convention, Princeton, N. J., June 23-26.

CANADIAN SOCIETY OF CIVIL ENGINEERS. Secretary, Clement H. McLeod. Meets Thursdays, in Montreal, except during the months of May to September, inclusive.

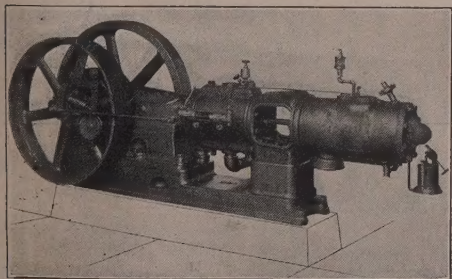
British Firms Adopt American Iron Process

The American Rolling Mill Company, of Middletown, Ohio, has closed contracts with Richard Johnston & Nephew and the Shelton Iron, Steel & Coal Company, of Manchester, England, two iron manufacturers of international standing, for the right to make American ingot iron. The importance of this announcement can only be appreciated by those familiar with the conservatism of British firms of the age and standing of those mentioned and with the traditions in the iron and steel trade. Heretofore refinements in processes, looking toward the production of products of higher quality, have always traveled from England to America. The contracts were closed after a searching investigation by the British firms and after a demonstration in their mills that ingot iron could be made in their furnaces. In fact, heats were put through even to the final products. It is understood that the rights will be availed of largely for rolling rail for third-rail electrification purposes, for which it has an advantage over mild steel on account of its higher conductivity, the advantage being about 25 per cent.

Simultaneously the company has given out statistics of the growth of its business. Whereas in 1906, when the process was adopted, the tonnage of sheet metal was 40,000, now it is 165,000. While much of the product is used where resistance to corrosion is the chief factor, its other marked properties, such as ease of welding and relatively high electrical conductivity, have materially widened its use.

Air Compressor Direct Connected to Oil Engine

A direct-connected air compressor driven by an oil engine has recently been put on the market by the Ingersoll-Rand Company, of New York City. The engine is of the common kerosene-engine type, with an ignition bulb and a fuel pump. The stroke of this pump is regulated by a centrifugal governor located on the flywheel, shown on the accompanying photograph. The power cylinder is water jacketed and provided with lubrication. The torch for heating the bulb is only necessary



Oil Engine with Direct-Connected Air Compressor

in starting the engine and can be dispensed with as soon as the engine is running. Directly connected to this engine is a single-cylinder air compressor having a capacity of 66 cu. ft. of free air per minute at 100 lb. pressure when the engine is running at 325 r.p.m., or 73 cu. ft. at 80 lb. The fuel consumption at this speed and under average operating conditions is about 2.2 gal. of kerosene per hour. The fuel can be either kerosene, fuel oil or distillate. The assembled machine weighs 3000 lb. and its floor space is 8 ft. 10 in. x 2 ft. 5 in.

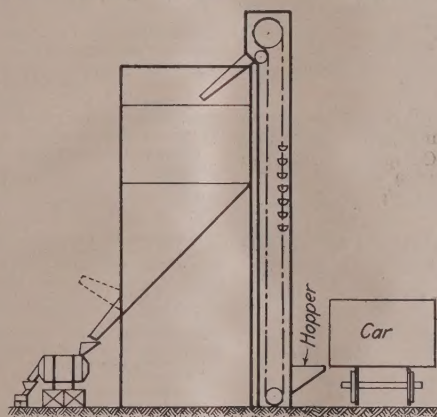
New Transit of Light Weight

The "media" transit, which is described as an abridged edition of the ordinary transit, has been put on the market by Kolesch & Company, of New York City. The instrument has an 8½-in. telescope, magnifying nineteen times, mounted on a U-shaped standard. The 5-in.

limb is divided into half-degrees, numbered from 0 to 360 deg. in each direction. There is one vernier, reading to 1 minute. The instrument weighs about 7½ lb. without tripod, and is furnished with or without the vertical circle. Claim is made that 90 per cent of all the average engineer's work can be done with the instrument, and it is especially recommended for mining and preliminary surveying and similar work where lightness is desired.

Portable Bins for Concrete Aggregates

Because of the economy of handling cement in bulk, a portable storage system for handling cement, sand, gravel and crushed stone has been devised by the Weller Manufacturing Company, of Chicago. The system consists of a number of bins into which the materials are deposited by a bucket elevator. These bins are built so that no danger of damage from rain exists. The capacity of the bins is one carload or more, and the aggregates are fed by gravity to the mixer below. For batch mixing, measuring devices can be fitted to the chutes or the materials can be directly spouted into the hopper. For continuous mixing, automatic feeding devices can be attached to



Portable Bin for Concrete Aggregates

spouts, regulated to deliver varying amounts from the different bins at the same time.

By this arrangement maximum capacity can be reached, as the unloading from cars can be accomplished at the most convenient time and a large supply of material is constantly on hand and available by operating a lever. After finishing one job the equipment can be taken down, shipped to another point and quickly reassembled. The machinery can be operated by motor, gas or steam engine or any other available power. These storage systems can be built all steel or all wood, or a combination of steel and wood.

Progress of the Asphalt Industry

Aside from the figures that tell the story of financial operations, the annual report of the General Asphalt Company for the year ended April 30 last, just issued, contains some matters of general interest to municipalities and the paving and road-building industry in general. As showing the policy of the company to encourage the widest distribution of its products through other contractors than its own operating organization, the Barber Asphalt Paving Company, paving operations slightly decreased, while the sales of asphalt so far increased that the total volume of business done in the last year is nearly \$300,000 in excess of that of the year previous. The entire tonnage of Trinidad and Bermudez asphalts sold and consumed was 321,222 tons, as compared with 300,403 tons in 1912.

Under the heading of "Maintenance of Pavements" the report shows that in 1905 the average length of guaranty was 7.2 years and the percentage of pavements laid without guaranty 6.4. In 1913 the average length of guaranty was 2.45 years and percentage of pavements laid without guaranty 51.6, all of

which means that municipalities have seen the wisdom of getting cheaper pavements by assuming their own guarantee, and have found this to be the best and most economical policy.

On the subject of "Road Building" the report, after showing an increase of about 2,000 tons in the sales of Bermudez road asphalt, remarks: "The fact that some asphaltic highways have been poorly built with inferior materials cannot have more than a passing and localized effect upon the adoption of this form of construction for country highways. This opinion is confidently held for the reason that the roads built in 1909 under skilled supervision with your company's material by experienced contractors are giving excellent service, and are requiring very little expenditure for maintenance."

The balance sheet of the company shows an increase in volume of business of from \$14,995,323 in 1912 to \$15,279,351 in 1913. The net gain to surplus was \$1,152,667, as compared with \$1,120,924 in 1912.

American Concern Lands Large Foreign Contract

The Government of Uruguay has awarded a contract for 55 scales for the Port of Montevideo to the Standard Scale & Supply Company, of Chicago. The contract included 15 scales of the heavy railroad type. The Uruguayan Government invited bids in the early part of 1913 for the scales, and tenders were received from manufacturers of weighing machinery in England, France, Germany, Canada, Argentina and the United States. It is of interest to note that an American concern was awarded the contract.

Business Notes

John Baker, Jr., of Chicago, Ill., dealer in asphalts and bituminous products, has moved his Chicago office to the Otis Building.

The Helderberg Cement Company, of Albany, N. Y., has elected F. W. Kelley to fill a vacancy created on its executive committee by the death of T. Henry Dumary.

Grant Smith & Company and Locher; Smith, Hauser, Locher & Company; Smith, Hauser & MacIsaac, Inc., of New York City, have moved their offices from 25 West Forty-second Street to 18 East Forty-first Street.

The Standard Cast Iron Pipe & Foundry Company, of Bristol, Penn., opened, May 1, a branch office at 201 Devonshire Street, Boston, Mass. William F. Woodburn is in charge of the office, being its New England representative.

The Gun-Crete Company, of Chicago, engaged in cement-gun work for engineering, industrial and mining structures, has opened its new offices in the McCormick Building, Chicago. Carl Weber is president of the concern.

The Santo Manufacturing Company, of Philadelphia, has purchased the patents and manufacturing facilities of the Keller Manufacturing Company and will continue to manufacture and market the Santo vacuum devices. A. H. Boyd, formerly manager of the Philadelphia branch of the Fort Wayne Electric Works, Fort Wayne, Ind., has been appointed general manager and treasurer of the new organization.

Trade Publications

The Kelly & Jones Company, of New York and Pittsburgh, has issued an illustrated 441-page catalog containing complete price lists of brass and iron goods and specialties for steam, gas, water, air, and oil.

Daniel B. Luten, designing and consulting engineer of Indianapolis, has issued a 44-page booklet containing a number of photographs of "Luten Design" arches, which are in use in various vicinities.

WATERWORKS.

Items Arranged Geographically

★**Boston, Mass.**—Contracts awarded May 11 for laying water pipe as follows: 4, 6, 8, 10, 12, 16-in. pipe in Brighton and Dorchester, to Roger P. Cushing, 445 Washington St., Dorchester, at \$10,265, and laying 13,600 lin. ft. 6 to 16-in. pipe in Roxbury, West Roxbury and Hyde Park, to John Guarino, Brook Ave., Roxbury, at \$10,374.

★**Waterbury, Conn.**—Bids desired until June 5 by City Clerk for \$150,000 water bonds.

★**Sea Breeze, N. Y.**—Five lowest bids opened May 15 for constructing water works, from plans of H. E. Kittredge, German Insurance Bldg., Rochester; W. G. Fritz, Newark, N. J., \$20,812; John Petrossi, Rochester, \$21,500; Fischette Bros., Clyde, \$21,570; Empire Constr. Co., Newark, N. Y., \$21,609; Harwick & Doyle, Rochester, \$22,000.

★**East Syracuse, N. Y.**—Engineer G. E. Higgins writes that no bids were opened May 8 by Village Trustees for about 4½ miles 8-in. c.-i. pipe; cost reported at about \$22,000. Bids will soon be received.

★**Morris, N. Y.**—Contract to construct water works, reported awarded to Snell & Co., Canajoharie, at \$20,000.

★**Lackawanna, N. Y.**—Maxwell Briggs, Comr. Pub. Wks., having plans prepared for water works with pumping station and reservoir; estimated cost, \$250,000.

★**Linden, N. J.**—J. P. Winans, of the Linden Water Co., writes it is proposed to construct water works, to cost \$300,000. Plans not yet prepared.

★**Clearfield, Pa.**—Contract awarded May 14 by Clearfield Water Co., for spillway and core walls for Montgomery reservoir, to M. Applegate & Son, Bradford, at \$11,501. Other bidders: R. J. Breckenridge, Grove City, \$14,561; Drake & Dean, Inc., Buffalo, N. Y., \$12,613; Curwensville Con. Co., Curwensville, \$13,696; Chas. C. Hopkins, Engr., 349 Cutler Bldg., Rochester, N. Y.

★**Unit price of M. Applegate & Son, successful bidders, as follows:** 600 cu. yds. excav., 5 ft. deep, 85 cts.; 200 cu. yds., 5-10 ft., \$1.25; 70 cu. yds., 10-15 ft., \$2; 70 cu. yds., 15-20 ft., \$2.75; 60 cu. yds., 20-25 ft., \$3.50; 85 cu. yds. rock excav., \$3.50; 850 cu. yds. concrete, 1:3:5, \$8; 1520 lbs. steel rods, 6 cts.; 1000 lin. ft. drill holes for grouting, \$1.

★**Laurel, Md.**—Plans being prepared by Harry Stevens, Union Trust Bldg., Washington, D. C., for extension to water works and mechanical filter plant.

★**Baltimore, Md.**—Bids desired until June 17 by Bd. Awards, care of City Register, for constructing superstructure of buildings at Lake Montebello, Water Dept. Contract 23, advertised in Engineering Record. Ezra B. Whitman, Consulting Engr.; Robt. L. Clemmitt, Acting Water Engr.

★**Washington Barracks, D. C.**—Bids desired until June 12 by Lieut.-Col. Jos. E. Kuhn, Corp. Engrs., U. S. A., for furnishing motor driven centrifugal pumps.

★**Wheeling, W. Va.**—D. G. Brown, Clk. Bd. Control, writes rapid sand filtration plant of 20,000,000 gals. capacity recommended by Geo. A. Johnson and J. R. Kommer, Consulting Engrs., if City Council approves, bond issue election will be held some time in June. Cost, about \$400,000.

★**Hertford, N. C.**—Citizens May 6 voted bonds as follows: Water works, \$17,000; lighting plant, \$12,000; sewer system, \$15,000; and street improvements, \$8,000.

★**Washington, N. C.**—Bids desired until June 17 by Com. on Improvements, for mechanical and electrical equipment and for electric light plant improvements, advertised in Engineering Record. Gilbert C. White, Engr., Charlotte, N. C.; H. B. Charles, Supt.

★**La Grange, Ga.**—City Council has purchased from American Pipe & Constr. Co. present water works; will make many improvements.

★**Bradentown, Fla.**—Contract awarded May 16 for 3 miles 4 to 8-in. iron water pipe to Bryan & Co., Jacksonville. S. C. Corwin, Comr. Pub. Wks.

★**Jacksonville, Fla.**—Total of bids for sluice gates, shear gates, valve and check, opened May 15, by Board Bond Trust, Coldwell Wilcox Co., Newburg, N. Y., \$6,028; Chapman Valve Co., Indian Orchard, Mass., \$6,320; Roe Stephens Mfg. Co., Detroit, Mich., \$11,466; Rodney Hunt Machine Co., Orange, Mass., \$9,390; Pelton Water Wheel Co., New York, \$12,246.

★**Jackson, Miss.**—This city has sold \$400,000 bonds for building a water plant, according to plans of A. L. Dabney, Memphis, Tenn.

★**Youngstown, O.**—Bids desired until May 29 by Director Pub. Service, for furnishing, delivering and installing 3 horizontal centrifugal pumps driven by direct connected horizontal condensing steam turbines, together with all appurtenances, in new pumping station on West Ave.

★**Contract awarded May 5 for concrete chimney for water works pumping station, to Weber Chimney Co., Chicago, Ill., at \$5,200. H. C. Fox, Clk. Bd. Pub. Service.**

Contracting News

Of Special Interest to Engineers, Contractors, Builders and Manufacturers of Engineering and Building Supplies

★**Trotwood, O.**—Citizens May 14 voted bonds for purchasing present water works, which will be extended. J. H. Cochran, City Clk.

★**Portsmouth, O.**—Bids desired until June 2 by City Auditor, for \$50,000 water works extension bonds.

★**Michigan City, Ind.**—Krechbiel Co., Chicago, Ill., engaged to prepare plans and specifications for remodeling and otherwise improving city water supply.

★**Grandville, Mich.**—Contract awarded by Village Trustees for installing water works to Hydraulic Eng. Co., at \$12,000.

★**Freeburg, Ill.**—Bids desired until June 1 by Village Clerk for improving water works, to include approximately 1924 ft. 6-in. Class B c.-i. pipe, 1800 lbs. c.-i. specials, 2 6-in. gate valves with boxes, 7500 ft. No. 2 B. & S. gauge T. B. W. P. wire, 200-gal. per min. motor driven triplex pump, motor to be direct-current, 220 volts, or not less than 12 hp capacity. Fuller-Coult Co., Engrs., Chemical Bldg., St. Louis, Mo.

★**Moline, Ill.**—Contract for mains for East End Water Main Dist., opened by Bd. Local Improv. May 12, awarded to T. C. Brooks & Sons, Jackson, Mich., at a total of \$92,631, including pipe, valves, Tees, bends, etc. Unit prices on some of the items of their bid are as follows: 12,170 ft. 12-in. water main, \$1.71; 5600 ft. 10-in., \$1.32; 13,000 ft. 8-in., \$1.10; 33,800 ft. 6-in., 85 cts.; 4300 ft. 4-in., 75 cts.; 2000 cu. yds. rock excav., \$2; 2000 cu. yds. earth backfill, \$2. Totals of other bids: Public Service Contr. Co., Omaha, Neb., \$94,914; Dunnegan & Masters, Shenandoah, Ia., \$100,424; E. R. Harding Co., Racine, Wis., \$102,237; Gray-Robinson Contr. Co., Manitowoc, Wis., \$100,246; Moline Htg. & Contr. Co., Moline, \$98,397; Dearborn Contr. Co., Waterloo, Ia., \$94,882. Engineer's estimate, \$102,556. Lyle Payton, City Engr.

★**Bushnell, Ill.**—Bids desired until June 1 by City Clerk, for water tower and tank; said tower to be a height of 100 ft. to bottom of tank, and tank to have a capacity of 100,000 gals.

★**Danville, Ill.**—Danville Water Co. reported to have decided to erect dam and create a series of reservoirs 19 miles northwest of Danville. Second reservoir will be located at Myersville.

★**Milwaukee, Wis.**—Contract reported awarded to F. H. Makieski, to construct water works tunnel 9 ft. diam. connecting Linwood Ave. with pumping station, at \$24,905.

★**Manitowoc, Wis.**—Plans reported being prepared for improvements, including new boilers and pump at water plant; cost, about \$24,000.

★**Appleton, Wis.**—Bids desired until June 10 by E. L. Williams, City Clk., for furnishing and installing 500,000-gal. steel water tank, steel tower and all appurtenances.

★**Eddyville, Ia.**—Town Council reported to have engaged M. G. Hall, to prepare plans for waterworks; also for paving Walnut St.

★**City Clerk writes specifications will probably be ready July 1 on the above water works.**

★**Valley Junction, Ia.**—Contract for constructing water works, from plans of Iowa Eng. Co., Clinton (bids opened May 11) awarded to Des Moines Bridge & Iron Co., Des Moines, at \$32,454. Next 3 lowest bidders: Katz Constr. Co., Omaha, Neb., \$33,333; T. C. Brooks & Sons Co., Jackson, Mich., \$33,600; W. D. Lovell, Minneapolis, Minn., \$33,635.

★**Wapello, Ia.**—It is reported that Central States Eng. Co., Muscatine, is to superintend work of constructing 2 miles of sewers and ¾ mile water mains; cost, about \$22,000.

★**Boone, Ia.**—Contract awarded May 13 for 25,000 ft. 4-in. water mains, hydrants and valves to Andrew G. Anderson, Boone, at \$13,772. Otto Hille, City Clk.

★**Minneapolis, Minn.**—F. W. Cappelen, City Engr., reported to have recommended to City Council, a water-softening process for city water works.

★**Thief River Falls, Minn.**—Question of installing filtration plant for water supply reported being considered by City Council.

★**Litchfield, Minn.**—City Council reported to have decided to erect steel tower and tank; cost, about \$4,000.

★**Alexandria, Minn.**—Bids desired until June 1 by City Clerk, for addition to waterworks, from plans of J. F. Draur, of Oscar Claussen Engr. Co., Commercial Bldg., St. Paul, to consist of pump house and accessories, 300,000 gal. capacity reinforced concrete reservoir with pipe line and connections to present system, pump 400 gals. capacity, motor, 25 to 30 hp, drilled well, 16, 20 or 24-in., or reinforced concrete dug well.

★**Buhl, Minn.**—City Council reported to have decided to issue bonds and sink wells for water supply system.

★**Coldwater, Kan.**—See "Power Plants, Gas and Electricity."

★**Norfolk, Neb.**—Citizens voted May 11 \$10,000 bonds for constructing waterworks. H. H. Tracy, City Engr., now preparing plans.

★**Casselton, N. D.**—City Auditor writes question of constructing water works and sewer system receiving attention of Council Com. Nothing definite yet decided.

★**Carrington, N. D.**—About 2½ miles of extension of water mains reported ordered by City Council.

★**Veblen, S. D.**—Bids desired by City Auditor June 9 for constructing water works, from plans of Dakota Eng. Co., Mitchell, advertised in Engineering Record.

★**Madison, S. D.**—Bids rejected as opened May 11, by City Comrs. for constructing a well 30 ft. diam., 28 ft. deep, together with appurtenances. Lowest bidder, Jas. Robertson, Madison, \$3,493. Chas. A. Trimmer, City Engr.

★**Moorcroft, Wyo.**—Citizens May 12 voted to construct water works. D. R. Shaeckleton, Town Clk.

★**Billings, Mont.**—An offer has been made by City Council to Montana Water Co. for its plant. If offer is accepted, matter of purchase will be submitted to voters at a special election, and if approved, water system will pass into City's hands; if proposition is rejected by Water Co., steps will be taken to readvertise \$575,000 bond issue voted at election last March for installation of new system.

★**Chinook, Mont.**—State Bd. of Health has recommended to City Council that water works be improved or new plant constructed.

★**Red Lodge, Mont.**—Bonds in the sum of \$30,000 reported sold for laying 12-in. water main.

★**Kansas City, Mo.**—Bids desired until May 27 by Bd. Fire and Water Comrs., for furnishing 2000 or 5000 ¾-in. water meters.

★**St. Louis, Mo.**—Bids desired until June 2 by Bd. Pub. Improv. and Water Comr. for constructing a mixing chamber, with connections, sluice gates, valves and appurtenances at Chain of Rocks.

★**La Grange, Mo.**—Contract awarded May 15 for constructing water works, from plans of J. P. Davis, Windsor, to C. M. Hanes, Whitehall, Ill., at \$15,460. Other bidders: Commercial Constr. Co., Kansas City, \$15,990; J. A. Pringle, Monroe City, \$16,147; V. E. Koch, Joplin, \$16,186; Monie & Dunbar, St. Louis, \$16,290. Carroll Bozarth, City Clk.

★**Bryan, Tex.**—Contract awarded to Fred Standard, League City, for drilling an 8-in. well of not less than 180 nor more than 300 ft. deep to supplement city water system.

★**Beaumont, Tex.**—Bids desired until June 2 (extension of date from May 27) by City Secretary, for improving water works, to consist of water works canal and improvements, reinforced concrete settling basin, concrete construction for filters, brick filter house, etc., six 500,000-gal. mechanical filter units. Burns & McDonnell, Engrs., Scarritt Bldg., Kansas City, Mo.

★**Kirkland, Wash.**—Bids desired June 1 by City Council for \$18,000 bonds for constructing water system. Reitze, Storey & Duffy, Engrs., Northern Bank Bldg., Seattle.

★**Toppenish, Wash.**—It is proposed to improve and extend water works, at \$18,000. C. H. Green Co., Engrs., Spokane. C. A. Wyckoff, City Clk.

★**Centralia, Wash.**—Contract for constructing 750,000-gal. reservoir reported awarded to W. H. Mitchell, Seattle, at \$16,000.

★**Quincy, Wash.**—L. M. Rice, Centr. Bldg., Seattle, Engr. Quincy Valley Irrig. Dist., writes surveys now being made to irrigate 400,000 acres of lands in Quincy Valley; capacity of canal, about 4000 sec. and ft.

★**Tacoma, Wash.**—City Council passed ordinances for 2400 ft. 8-in. and 9000 ft. 6-in. mains in Local Improv. Dist. 5017.

★**Seattle, Wash.**—Plans and specification submitted to Bd. Pub. Wks. by City Engr. for installation of water mains in 38th Ave., S. W.; cost about \$32,000.

★**Amity, Ore.**—J. W. Morris, Portland reported to have secured franchise for constructing water works.

★**Richland, Ore.**—This town has adopted a new charter to enable City Council to put in gravity water system; it is proposed to construct a pipe line from Eagle Creek, 5 miles above Richland, and to furnish water to Newbridge, 2 miles away.

★**Sanger, Cal.**—Contract awarded May 9 to Hall & Hunt, Fresno, by Bd. City Trustees, for constructing sewer system and water works, at \$56,162.

★**Santa Cruz, Cal.**—A committee, including Christian Hoffmann and A. A. Morey appointed to investigate water conditions in their report, recommend construction of new dam on Laguna Creek, a pipe line from dam to present Cowell's reservoir, a new storage reservoir with capacity of not less than 100,000,000 gals., a new distributing reservoir as large as possible, placing present reservoir (Cowell's) in good condition; repair of present distributing reservoir on High St.; repair present pipe line, secure site for future reservoir on Wilder land or other suitable place; total cost, \$150,000.

★**Fairview, Idaho.**—Bonds in the sum of \$36,000 reported sold for construction of water works.

★**Toronto, Ont.**—Bids desired until May 26 by Chairman Bd. Control for excavating, laying and jointing 42, 30 and 24-in. c.-i. water pipes, valves and special castings.

★**Newmarket, Ont.**—A by-law authorizing issue of \$25,000 bonds for extension of water service, reported passed by Town Council.

★**Calgary, Alta.**—Bids desired until May 26 by City Comrs., for furnishing and delivering f. o. b. cars, Calgary, valves for water works purposes.

★**Estevan, Sask.**—Contracts have been awarded as follows on (bids opened May 9): 10,500 ft. water mains and 16,000 ft. sewer pipe to W. S. Coffin, Estevan, \$39,126; furnishing c.-i. water pipe and specials, U. S. Cast Iron Pipe & Fdry. Co., Chicago, Ill., \$8,870; fire hydrants and gate valves, Jenkins Bros. Ltd., Montreal, Que., \$1,415; sewer pipe and junctions, Vitrifed Clay Co., Ltd., Calgary, Alta., \$7,235. H. V. Armstrong, Town Engr.

★**Regina, Sask.**—During the present year the following improvements will be made by city: Water works general, \$560,000; water main extension, \$127,752; domestic sewer extensions, \$142,45; storm sewer extensions, \$170,000; sewage disposal works, \$61,520; street railway extensions, \$250,000; pavement, \$452,947; sidewalks, \$65,000; electric light and power, \$404,000; total, \$2,033,264.03.

★**Prince Rupert, B. C.**—Board of Works planning to lay 10-in. water mains in 17th St. and 6-in. mains in 6th and 7th Sts.; cost about \$20,000.

★**Vernon, B. C.**—City Council desires bids about June 1 to furnish concrete pipe at a cost of \$15,000 for new water works. Cummins & Agnew, Engrs., Vernon.

★**Mailardville, B. C.**—City Council reported considering construction of water works.

★**Victoria, B. C.**—City Purchasing Agent writes contract awarded for furnishing 10,000 ft. 4-in. steel pipe to Evans, Colman & Evans, Victoria, at \$26.58 per 100 ft. (bids opened May 4).

★**Panama**—See "Miscellaneous."

SEWERAGE AND SEWAGE DISPOSAL.

Items Arranged Geographically

★**Amesbury, Mass.**—Contract awarded May 6, for building sewer system to C. E. Trumbull Co., 73 Tremont St., Boston, at \$28,000.

★**Quincy, Mass.**—City Council appropriated \$25,000 for extension of sewer system.

★**Marblehead, Mass.**—Contract for rebuilding Marblehead Town drain awarded to Jas. J. Welch, Salem, at \$10,000.

★**Woonsocket, R. I.**—City Council appropriated \$18,400 for trunk sewer on Fairmount St. and intersecting sewers on several streets.

★**Woonsocket, R. I.**—Bids desired until June 9 by Bd. Sewer Comrs. for building about 5800 ft. 8 in. and about 425 ft. 15 in. sanitary sewer and appurtenances; also same time and place separate bids for constructing 2 sand filter beds about 250 ft. x 150 ft. and 5 ft. deep, both proposals advertised in Engineering Record. Frank H. Mills, City Engineer.

★Items marked thus give the names of parties awarded contracts.

Goshen, N. Y.—Bids were opened May 15 by Village Trus. for system of sewers and sewage disposal plant from plans of Clyde Potts, Engr., 30 Church St., New York: (a) Fred. E. Gross & Son, Inc., Yonkers, \$92,939; (b) John W. Heller, Newark, N. J., \$94,391; (c) Abner M. Harper, Inc., Newburg, \$98,642; (d) Jos. L. Sigretto & Co., Woodhaven, L. I., \$98,817; Bernardino & Tomassetti Co., Meriden, Conn., \$101,861; Peckskill Constr. Co., Peckskill, \$107,504; Riverdale Contr. Co., New York, \$110,934; John J. Vernon, Peckskill, \$112,402; Martin & Miller, Caldwell, \$116,065; Transit Constr. Co., M. H. H. V. P., \$121,586; Frank Puglia, Paterson, N. J., \$122,650; Edw. B. Roberts, Pittsfield, Mass., \$125,478; New York Sewage Disposal Co., New York, \$127,284; Smith Bros., Pelham, \$133,964; Watson Eng. Co., New York, \$150,919.

Unit prices of 4 lowest bidders: a, b, c and d.

Terra Cotta Pipe.	(a)	(b)	(c)	(d)
5,322 ft. 8-in., 0-6 deep.....	\$0.63½	\$0.47	\$0.50	\$0.65
9,722 ft. 8-in., 6-8 deep.....	.76½	.60	.65	.65
2,995 ft. 8-in., 8-10 deep.....	1.03½	.75	.82	.65
55 ft. 8-in., 10-12 deep.....	1.43½	1.20	1.16	.65
10-in., 0-6 deep.....	..	..	.70	..
10-in., 6-8 deep.....	..	.90	.85	.65
7,492 ft. 12-in., 0-6 deep.....	.81	.69	.71	.90
280 ft. 12-in., 6-8 deep.....	.95	.80	.86	.90
125 ft. 12-in., 8-10 deep.....	1.21	.95	1.02	.90
65 ft. 12-in., 10-12 deep.....	1.74	1.35	1.30	.90
130 ft. 15-in., 0-6 deep.....	.94	1.85	.92	1.40
365 ft. 15-in., 6-8 deep.....	1.08	1.05	1.12	1.40
120 ft. 15-in., 8-10 deep.....	1.34	1.20	1.30	1.40
625 ft. 15-in., 10-12 deep.....	1.87	1.55	1.61	1.40
15-in., 12-14 deep.....	..	..	2.28	1.50
2,439 ft. 18-in., 0-6 deep.....	1.28	1.20	1.26	1.40
1,579 ft. 18-in., 6-8 deep.....	1.35	1.42	1.40	1.54
1,035 ft. 18-in., 8-10 deep.....	1.55	2.40	1.78	1.69
710 ft. 18-in., 10-12 deep.....	1.75	3.25	1.99	1.84
110 ft. 18-in., 12-14 deep.....	2.25	4.20	2.49	1.99
110 ft. 18-in., 14-16 deep.....	..	6.25	2.99	2.14
110 ft. 18-in., 16-18 deep.....	..	8.50	3.69	2.50
300 ft. 5-in. deep house connection.....	1.00	.25	.16	.50
5 M ft. foundation timber.....	60.00	40.00	50.00	30.00
2 M ft. sheathing timber.....	40.00	35.00	50.00	30.00
28 tons c. i. pipe.....	40.00	50.00	30.00	25.00
50 yds. concrete, Class "A".....	6.00	7.50	5.00	8.00
10 yds. concrete, Class "B".....	7.00	6.50	7.00	8.00
1,500 lbs. reinforcing steel.....	.08	.03½	.03	.03
Fill.....	1.00	1.00	.90	.50
225 manholes, 0-6.....	36.00	35.00	37.00	34.00
100 ft. manholes, extra depth.....	4.00	3.00	6.50	4.00
5 lamp holes.....	15.00	15.00	8.00	5.00
3,250 yds. rock excav.....	2.75	2.50	3.00	1.50
Disposal works.....	22,000.00	31,974.00	34,000.00	35,000.00

Bridgeport, Conn.—A. H. Terry, City Engr., has about completed plans for last Side trunk sewer, to be constructed in summer.

Southington, Conn.—Permission reported granted to Sewer Comrs. to ask bids for constructing sewer system for Southington, Plantsville and Milldale; cost, about \$175,000.

Long Island City, L. I., N. Y.—Bids desired until May 27 by Boro. Pres. for constructing sewers and appurtenances in portions of Ocean View Ave., Fulton, Sherman and several other streets. Security, \$17,300.

Brighton, N. Y.—Bids opened May 12 by Sewer Comrs. Sewer Dist. No. 1, Brighton, 20 Exchange St., Rochester, for arm and sanitary sewer systems, and disposal plant, requiring excavation, lay-18, etc., of 24,693 ft. vitr. sewer pipe, 8 to 6-in., 54 manholes, 4 flush tanks, pumping station, settling tank, filter beds, etc., from plans of W. S. Lozier, Cutler Bldg., Rochester.

Four lowest bids for sewer system: N. Desiderio, Rochester, \$32,128; Ripton & Murphy, Rochester, \$32,753; Frank Cuseneri, Rochester, \$33,878; Brooks & Ullian, Rochester, \$35,445.

Four lowest bids for disposal plant: John Petrossi, Rochester, \$13,738; Frank Cuseneri, Rochester, \$15,809; Brooks & Ullian, Rochester, \$16,718; N. Desiderio, Rochester, \$18,264.

Yonkers, N. Y.—Bd. Contract and Supply desires bids May 25, for total of 13 contracts, twelve of which are for the construction of sewers, and one for the surfacing of pavement in Buena Vista Ave., from south curb line of Nepperhan Ave. to south line of Dock St.

West Point, N. Y.—Bids desired until May 28 by Quartermaster, for surface drains at cavalry and artillery stables.

Buffalo, N. Y.—Bids desired until May 9 by Bd. Pub. Wks. for constructing concrete sewer through water works property from Deafield to North Sts., and extensions to present culvert on Delafield St. and Summit Ave.

Newark, N. J.—Contract awarded by Passaic Valley Sewerage Comrs. for Sect. 7, southerly portion, main intercepting sewer to City Co., Inc., Newark, at \$212,138 (bids opened Apr. 28). For unit prices, see Engineering Record, May 9.

Contract for completion of tunnel Sect. 8, opening at 4th Ave., which was recently abandoned, reported awarded to Booth & Flinn, Ltd., Pittsburgh, Pa.

Bids desired as follows by Passaic Valley Sewerage Comrs., Essex Bldg., Newark (Wm. M. Brown, Ch. Engr.), both proposals advertised in Engineering Record.

Until June 16, for constructing Northerly portion of Sect. 17, Main Intercepting Sewer, city of Paterson.

Until June 23, constructing a part of Sect. 9, main intercepting sewer, consisting of Second River crossing and Newark sewer, city of Newark and town of Belleville.

Cranford, N. J.—Township Com. has received from Jas. H. Fuertes report and plans for building parts of present sewer for purification plant. Plans will be submitted to State authorities for approval, after which Township may call an election to vote upon bond issue to make improvements.

Ridgefield Park, N. J.—Lederle & Provost, New York, engaged to prepare preliminary plans for sewage disposal plant.

Belleville, N. J.—Bids desired until May 26 by Town Council for constructing sanitary sewers in portions of Main, Terry, Essex and a number of other streets, in all about 33,720 ft. 8 to 15-in. pipe, 151 manholes, 22,000 ft. 6-in. house connections, 1500 curb markers, etc. Frank T. Shepard, Town Engr.

Chestertown, Md.—Bids desired until June 9 by Town Comrs. for \$25,000 bonds, for paying unpaid cost of present driveway on High St. and constructing sewer on part of High and Cannon Sts. and College Ave. and curbing and paving portions of High, Cross and Queen Sts.

Baltimore, Md.—Contract awarded May 16 for sanitary Contr. 134; lateral sewers No. 7 to Smith & Rugles, 4 W. 26th St., Baltimore, at \$79,468. Calvin W. Hendrick, Ch. Engr., Sewer Comm.

Hartford, N. C.—See "Water Works."

Washington, N. C.—Bids desired until June 17 by Com. on Improv. for constructing about 8 miles of sewers, together with a concrete collecting well, and motor driven centrifugal pumps and about 6000 ft. c. i. discharge, advertised in Engineering Record. Gilbert C. White, Engr., Charlotte, N. C.; H. B. Charles, Supt.

Bradentown, Fla.—Contract awarded May 15, for constructing 3 miles of storm sewers on Roesch Ave., to Southern Asphalt & Constr. Co., Birmingham, Ala. S. C. Corwin, Comr. Pub. Wks.

Miami, Fla.—Citizens reported to have voted May 12 to issue \$400,000 bonds for sewers, paving, purchase of site on Biscayne Bay for docks, etc.

Birmingham, Ala.—Contract will soon be let for construction of sanitary sewers in Owenton; approximately 4 miles; estimated cost \$11,000. Julian Kendrick, City Engr.

Contract will be let about June 2 for construction of sanitary sewers in East Lake; approximately 4 miles; estimated cost \$16,000.

Memphis, Tenn.—Local press reports state plans completed by City Engineer for North Memphis pumping station, and contract including equipment will soon be let.

Toledo, O.—After conferring with R. Winthrop Pratt, Consulting Engr., Cleveland, and Wm. H. Gould, County Sanitary Engr., City Engr. McKee presented a plan for freeing Ten Mile Creek of sewage pollution to special Swan Creek Council Com.; he estimates that the intercepting sewer would cost \$77,000; site for treatment plant, \$10,000; sedimentation tank, \$50,000; pumps, \$10,000.

Akron, O.—Bids desired by Director Public Service until June 16 for construction of a sewage treatment plant, advertised in Engineering Record. Engineer, R. Winthrop Pratt, Cleveland.

Cincinnati, O.—Bids desired until June 1 by Director Pub. Service, for constructing sewers in Central Ave.

Cleveland, O.—Bids are to be asked by City, for construction first unit of West Side sewage disposal plant at W. 58th St., R. Winthrop Pratt, Consulting Engr., Hippodrome Bldg.

Hammond, Ind.—Bids desired by Bd. Pub. Wks. June 1 for deep main sewer system and pumping station, advertised in Engineering Record.

Middletown, Ind.—Bids desired May 27 on 2.61 miles of 8 to 18-in. vitr. pipe sewer, cut 5 to 16 ft. E. A. Wisheart, Town Clk., M. H. Downey, Engr., Anderson.

Manhattan, Ill.—It is proposed to construct 12 blocks 24 or 30-in. pipe sewers, from 10 to 16 ft. deep, with septic tank.

Moline, Ill.—Contract for sewers in East End Sewer Dist., bids opened May 12 by Bd. Local Improv., awarded to Dunnegan & Masters, Shenandoan, as follows: vitr. Pipe Sewers, 8-in.—4000 ft., 6-ft. cut, 50 cts.; 8660 ft., 6-8 ft., 55 cts.; 13,870 ft., 8-10 ft., 65 cts.; 7030 ft., 10-12 ft., 75 cts.; 340 ft., 12-14 ft., 85 cts.; 1060 ft., 14-16 ft., \$1; 210 ft., 16-18 ft., \$1.25. 10-in. Pipe—2390 ft., 6-8 ft., 55 cts.; 3600 ft., 8-10 ft., 65 cts.; 340 ft., 10-12 ft., 85 cts. 12-in. Pipe—1800 ft., 6-8 ft., 60 cts.; 1460 ft., 8-10 ft., 70 cts.; 890 ft., 10-12 ft., 85 cts.; 390 ft., 12-14 ft., \$1.25; 390 ft., 14-16 ft., \$1.35; 1190 ft., 16-18 ft., \$1.45. 12-in. Double Strength Pipe—100 ft., 18-20 ft., \$1.75; 100 ft., 20-22 ft., \$2.15; 100 ft., 22-24 ft., \$2.75; 100 ft., 24-26 ft., \$3.10. 15-in. Pipe—310 ft., 6-8 ft., 75 cts.; 2610 ft., 8-10 ft., \$1; 910 ft., 10-12 ft., \$1.25; 1150 ft., 12-14 ft., \$1.50; 25 ft., 14-16 ft., \$1.75; 25 ft., 16-18 ft., \$2. 18-in. Pipe—390 ft., 6 ft., 90 cts.; 180 ft., 6-8 ft., \$1; 210 ft., 8-10 ft., \$1.25; 600 ft., 10-12 ft., \$1.75; 240 ft., 12-14 ft., \$2. 20-in. Pipe—640 ft., 8-10 ft., \$1.10; 100 ft., 10-12 ft., \$1.50; 110 ft., 12-14 ft., \$1.95; 100 ft., 14-16 ft., \$2.15; 210 ft., 16-18 ft., \$2.50. 20-in. Double Strength Pipe—310 ft., 18-20 ft., \$2.90. 24-in.—50 ft., 6 ft., \$1.50; 1050 ft., 6-8 ft., \$1.60; 760 ft., 8-10 ft., \$1.95; 820 ft., 10-12 ft., \$2.25; 585 ft., 16-18 ft., \$3.25. 24-in. Double Strength Pipe—1560 ft., 22-24 ft., \$4.20; 1100 ft., 24-26 ft., \$4.50. 30-in. Double Strength Pipe—260 ft., 26-28 ft., \$9.50. Y Branches—1575 ft., 40 cts. to \$1.05 ea. G. K. Joint Pipe—8 to 38-in., 6 cts. to 50 cts. Y Branches—28 20x6-in., \$1.50 ea. Y Branches—24 24x6-in., \$2 ea. 8-in. Risers—14 on 8-in. pipe, 6 ft., \$4 ea.; 42 on 12-in. pipe, 8 ft., \$5; 14 on 20-in. pipe, 20 ft., \$6.50. Lamp-holes—5, 4 to 6 ft. ea., \$4; 11, 6 to 8 ft. ea., \$5; 22, 8 to 10 ft. ea., \$6; 11, 10 to 12 ft. ea., \$6.50. Man-holes—88, 4 to 26 ft. deep, \$24 to \$100, according to depth of trench. Flush Tanks—2, ea. \$75; 13,350 cu. yds. rock excav., \$2.50; 13,350 cu. yds. earth backfill, 60 cts.; cinder foundation per cu. yd., \$1.25; sand foundation per cu. yd., \$1.75; concrete foundation per cu. yd., \$10; timber sheathing per M ft., \$35; sewage treatment plant, \$7,574; total, \$121,119. Totals of other bids: Dearborn Contr. Co., Waterloo, \$139,426; E. R. Harding Co., Racine, Wis., \$143,378. Engineer's estimate, \$111,214. Lyle Payton, City Engr.

Aledo, Ill.—Bids desired until May 26 by Bd. Local Improv. for furnishing material and constructing 9850 ft. 6 and 8-in. tile sewers. W. S. Shields Co., Engrs., 8 S. Dearborn St., Chicago.

La Salle, Ill.—Citizens voted \$40,000 bonds for constructing sewers. J. B. Lawniczak, City Clk.

Berwyn, Ill.—Contract for constructing sewers in 65th and other streets (bids opened May 5) awarded by Bd. Local Improv., to Chas. M. Porter Co., 118 N. La Salle St., Chicago. Cost about \$20,000.

Ashland, Wis.—Bids desired May 27 by Bd. Pub. Wks. for 2½ miles 8, 10 and 12-in. pipe sewers; cost \$14,000. Jas. Phillips, City Engr.

Milwaukee, Wis.—Six contracts reported awarded by city May 8 for sewers in 3 sections of city at a total cost of \$42,000, to Thos. Szukalski, Newman Hohensee, F. H. Nakielski, Jos. Forrester, G. E. Zimmermann, and Hiram Johnson.

Wapello, Ia.—See "Water Works."

Faribault, Minn.—Bids desired until June 1 by State Bd. Control, St. Paul, for sewage purification plant, State School for Feeble-Minded. Chas. L. Pillsbury Co., Engrs., Metropolitan Life Bldg., Minneapolis.

Lakefield, Minn.—Bids desired until June 9 by Village Clerk, for approximately 19,328 ft. 8 to 15-in. sewer, also settling tank, sludge bed and buildings. J. A. Rowat, Engr., Willmar.

St. Paul, Minn.—Bd. Pub. Wks. recommends immediate action by Council on constructing Front St. sewer, embracing territory at Front, Victoria and St. Albans Sts.; cost estimated at \$54,818.

Bd. of Pub. Wks. considering construction of Snelling-Como sewer system; estimated cost \$309,000; about 6 miles of sewer will be built.

Wadena, Minn.—City Council considering construction of sewer system.

Minneapolis, Minn.—City Engineer investigating feasibility of establishing a separate septic tank sewer system for Lake Harriet and Lynnhurst Dists.

Topeka, Kan.—This city will build outlet sewer from 6th and Morris Aves. to river, a distance of 6200 ft.; cost \$24,000.

Topeka, Kan.—City Comrs. considering passing resolution creating sewer districts 26, 32, 33 and 37 to pay for constructing sewer, approximately 6200 ft. long, to cost about \$24,000.

Valley Falls, Kan.—City Council passed resolution favoring immediate installation of sewer system.

Armour, S. D.—Bids desired until June 3 by City Auditor, for constructing sewer system. W. L. Bruce, Engr., Yankton.

Britton, S. D.—Bids desired by City Auditor until June 8 for 25,000 ft. 8 to 15-in. sewer, from plans of Dakota Eng. Co., Mitchell, advertised in Engineering Record.

Mitchell, S. D.—Bids desired until June 1 by City Auditor, for lateral sewers in Sewer Dist. 2, 6611 ft. 8-in. pipe.

Collinsville, Okla.—This city considering construction of sewage disposal plant, at an estimated cost of \$4,000. W. F. Keller, Engr., Independence, Kan.

Bids desired by City Clk. May 25 until 5 P. M., for the construction of 2 sanitary sewers of the total length of 4020 ft., at an estimated cost of \$5,592.

Seattle, Wash.—Bids desired by Bd. Pub. Wks. about July 1 for constructing sewer in E. 40th St., to consist of 4719 ft. 8-in., 380 ft. 12-in., 374 ft. 21-in. pipe sewers; cost, \$14,500.

Bids reported opened by Bd. Pub. Wks. May 8 for sewers in Swift Ave.: L. Coluccio, 1642 Lane St., \$22,326; Geo. W. Walker, \$22,940, and L. R. Ellis, \$26,031.

Portland, Ore.—City Council reported to have passed resolution for constructing sewers in E. 55th St.; cost about \$12,000.

Eugene, Ore.—Street Committee considering construction of a storm sewer. Cost, \$40,000.

Napa, Cal.—See "Bridges."

Sanger, Cal.—See "Water Works."

Vallejo, Cal.—Contract awarded by City Council to Michael Murphy, Berkeley, for intercepting sewers from Carolina and Butte Sts. to outfall at Main St., at \$8,500.

Boise, Idaho.—City Council passed ordinances for installation of trunk sewer in Dist. 3; also for sewers in Dist. 113.

Regina, Sask.—See "Water Works."

Estevan, Sask.—See "Water Works."

Panama—See "Miscellaneous."

BRIDGES.

Items Arranged Geographically

Uxbridge, Mass.—Bids desired until June 1 for constructing reinforced concrete bridge in Uxbridge. For further information address L. S. Aldrich, Engr., and Clk. of Committee, Uxbridge.

Fredonia, N. Y.—Clerk, Town of Pomfret, O. Fredonia, writes contract for concrete steel bridge over Canadaway Creek awarded to Corry Bridge & Supply Co., Corry, Pa., at \$3,339.

Mechanicsville, N. Y.—Boston & Maine Railroad Co. (A. P. Corthell, Ch. Engr., Boston, Mass.), reported to have completed plans and specifications for bridge to be constructed over Hudson River, at Saratoga Junction, N. Y., calling for 9 double track spans, requiring about 2500 tons of structural steel.

Cobleskill, N. Y.—Bids desired until June 12 by Town Clerk, for constructing bridge over Cobleskill Creek, near easterly boundary line of said village, advertised in Engineering Record.

Albany, N. Y.—Supt. of Public Works Duncan W. Peck has awarded Barge Canal Contract 106 to W. S. Cooper Co., Albion, at \$280,151, for constructing 4 heavy lift bridges and superstructure of one guard gate at the following locations on the Erie Canal: Lift bridges, Main St., Brockport, Contract 61; Prospect St., Medina, Contract 65; Main St., Middleport, Contract 64, and Exchange St., Lockport, Contract 66; superstructure of guard gate at Gasport on Contract 64, and hand brakes on nine other guard gates. (For unit prices on this contract see Engineering Record of May 16.)

Albany, N. Y.—See "Hydraulic Construction and River Improvement."

Paterson, N. J.—Bids desired until May 27 by Co. Bd. Chosen Freeholders, Bergen and Passaic Counties, Paterson, for constructing 8th St. Bridge, over Passaic River.

Pine Brook, N. J.—Surveys being made by Fred. A. Reimer, County Engineer, Newark, for 3-span concrete bridge, with steel girders over Passaic River.

Elizabeth, N. J.—Bd. Chosen Freeholders voted to construct bridge over Rahway River at St. George Ave.; cost, \$22,000.

Lonaconing, Md.—Citizens voted \$8,000 bonds for constructing bridge over George's Creek at Union St.

Clarksburg, W. Va.—Contract for constructing bridges awarded by City Council as follows: Steel bridge at 6th St., Owego Bridge Co., Owego, N. Y., at \$22,500, and concrete bridge at 4th St., to Lutten Bridge Co., York, Pa., at \$74,995.

Morgantown, W. Va.—Monongahela Valley Eng. Co., 208 High St., Morgantown, has about completed plans for reinforced concrete rib arch bridge at Morgantown for Monongalia County Court; cost, about \$75,000. Bids desired about June 6. Robt. D. Henner, County Engr.

Rome, Ga.—Bids desired until June 1 by County Bd. Road and Revenues, Rome, for a 60-ft. highway bridge of steel or concrete over Silver Creek, near Rounsaville's Mill. Keiffer Lindsay, Co. Engr., Rome.

Danielsville, Ga.—Bids desired until June 16 by County Comrs., Madison and Ekbert counties, Danielsville, for constructing bridge over Broad River, will consist of 5 piers, 4 steel spans, 2 172 ft. and 2 66 ft. Good Roads Dept., University of Georgia, Engrs., Athens.

Hamilton, Ala.—S. E. Neill, Highway Engr., writes all bids opened May 16 for constructing bridge rejected, and new bids will be received June 16 on new plans, 3 deck spans, 102 ft. on steel or stone substructure.

Nashville, Tenn.—Lowest bid opened by City, County, and Louisville & Nashville R. R. for constructing viaduct over tracks of Louisville & Nashville R. R. at Cleveland St., submitted by Foy-Proctor Co., at \$32,502.

Townsend, Tenn.—Bids reported desired until June 8 by County Bridge Com., Maryville (J. L. Clark, Chmn.) for constructing reinforced concrete arch near Townsend, to include 3 55-ft. spans, 165 ft. between abutments, 12-ft. roadway.

Collinsville, O.—Contract for constructing 200 ft. concrete bridge awarded by Emergency Comm. to Pan American Bridge Co., New Castle, Ind., at \$14,000.

Piqua, O.—Contract for constructing concrete bridge on Union St. (bids opened by County Comrs. at Troy, May 15), awarded to Hackendorf Contr. Co., Indianapolis, Ind., at \$94,704; next four lowest bidders: Duquesne Constr. Co., Pittsburgh, Pa., \$96,954; Wykoop & McGormley, Cumberland, Md., \$97,851; Rummer, Cooke & Grant Co., \$97,851; Walter S. Newhall Co., Cleveland, \$99,700.

Tiffin, O.—County Comrs. recommend that contracts be awarded as follows: Ft. Seneca Bridge, to Toledo Bridge & Crane Co., Toledo, \$8,082; Scott Bridge, to Modern Constr. Co., Fremont, and Umsted Bridge, to Elkhart Bridge & Iron Co., Elkhart, Ind., at \$7,795.

St. Marys, O.—Bids desired until June 6 by County Comrs., for constructing South St. Bridge, consisting of 2 concrete arches, 60-ft. span each. J. H. Meyer, Co. Surveyor.

Cleveland, O.—Bids desired until June 3 by Co. Comrs., Cleveland, for \$650,000 Brooklyn-Brighton Bridge bonds.

Mishawaka, Ind.—County Comrs. at South Bend approved plans for 3-arch concrete bridge over St. Joseph River, at Leeper Park; cost, \$100,000.

Muncie, Ind.—Bids reported desired until June 3 by County Comrs., for erecting 3 steel span, skew construction bridges as follows: Bway, 80 ft., cost, \$3,500; Washington St., 50 ft., cost, \$7,000; also John V. Long, Bridge, 19 ft. reinforced concrete arch, flat top construction. S. H. Weber, Co. Surveyor.

Smokey Hollow, Minn.—Bids desired until June 3 by Town Superv. for \$8,000 road and bridge bonds.

Glencoe, Minn.—Bids reported desired until May 29 by County Auditor, for constructing Bridge 828, 90 ft. pin-connected truss span, 18-ft. roadway, concrete floor and abutments.

Sanford, Kan.—Contract awarded May 8 by County Comrs. at Larned for 100-ft. double arch reinforced concrete bridge at Sanford to Topeka Bridge & Iron Co., Topeka, at \$5,635.

Minneapolis, Kan.—Contract for constructing concrete arch bridge over Pipe Creek awarded by County Comrs. to J. W. Weaver Constr. Co., Kansas City, Mo., at \$5,749.

Wayne, Neb.—Contract awarded by County Comrs. May 8 for constructing 2 steel bridges and repair of all bridges for 1914, to Standard Bridge Co., Omaha, Neb.

Nebraska City, Neb.—Bids reported desired until June 8 by County Comrs., for constructing 2 bridges, one at N. 8th and one at N. 16th Sts.

Red Lodge, Mont.—Plans completed by C. A. Gibson, County Surveyor, for constructing steel and concrete bridge over Clark Fork River. Cost, \$12,000.

Sheridan, Wyo.—Bids desired until June 15 by City Clk. for constructing steel reinforced concrete bridge over Little Goose Creek, on Bway. C. R. Wood, City Engr.

Batesville, Ark.—Construction of a State bridge over White River contemplated; cost, \$125,000.

Denver, Colo.—Bids desired until June 3 by Bd. Engrs., Colfax Larimer Viaduct, Denver, for constructing the foundations, reinforced concrete superstructure and reinforced concrete decking upon steel work for said viaduct. Herbert S. Crocker, Consulting Engr., 308 Tramway Bldg., Denver.

Colorado Springs, Colo.—Bids desired until May 29 by Co. Comrs. for constructing a 40-ft. concrete bridge with 20-ft. roadway.

Aztec, N. M.—Bids reported desired until June 2 by County Comrs., for constructing 1-span steel, high-truss bridge, 120 ft. long, 14 ft. roadway; concrete piers.

Ritzville, Wash.—Bids desired by the Co. Comrs. until June 6 for constructing four concrete bridges near here.

Everett, Wash.—Contract for constructing steel bridge near here awarded to R. S. Wright, Everett, at \$7,500.

Portland, Ore.—About \$10,000 is to be spent by City Council on improvements to bridge over Marquam Gulch at Front St., South Portland.

Woodburn, Ore.—Comrs. of Marion and Clackamas Counties voted to construct 70-ft. steel bridge over Butte Creek.

Madera, Cal.—Bids reported desired until June 2 by Bd. Superv. for constructing 7 reinforced concrete girder bridges, one 600 ft. over Ash Slough; one 140 ft., one 200 ft. and one 175 ft., over Cottonwood Creek; one 50 ft. over First Slough south of Berenda; one 70 ft. south over Second Slough south of Berenda; 2 reinforced concrete 3-hinge arch bridges, one 133 ft., of 2 spans, over Fine Gold Creek; one 145 ft., 2 spans, over Walker Creek; a combination wood and steel bridge, over Chowchilla Creek, having four 45-ft. spans, and a wood trestle bridge in the mountain district. Federal Engr. Co., 1119 Central Bldg., Los Angeles, Engrs.

Los Angeles, Cal.—Contract awarded Russell-Greene-Foell Co., Higgins Bldg. for constructing 2 wooden trestle bridges, one at Pacoima Ave., and one at Vineland Ave.; cost, \$8,000.

Dixon, Cal.—County Comrs. voted to construct bridge over Putah Creek; cost, \$50,000.

Napa, Cal.—About \$47,000 bonds will be sold by City Council, for constructing bridge over river at E. Fir St.; also for constructing a sewer.

Yuma, Ariz.—Bids desired by Comr. Indian Affairs, Washington, D. C., until June 15, for steel highway bridge across Colorado River; advertised in Engineering Record.

Plans and specifications for above bridge now on file for reference at office of Engineering Record, 239 W. 39th St., New York.

Challis, Idaho—County Comrs. considering constructing 3 steel bridges across Salmon River; cost, \$8,000 each.

Greer, Idaho—Press reports state that bids desired until June 6 by County Comrs. Clearwater and Louis Counties, at Orofino, for erecting bridge across Clearwater River at Greer. Cost, about \$16,000.

Laberge, Que.—New bids desired until June 1 by N. Mallette, Secy. Treas., for constructing a 250-ft. steel span bridge over Chateaugay River at Laberge, to have 2 concrete piers.

St. Boniface, Man.—Bids desired until June 20 by City Secretary for superstructure of Provencier Ave. Bridge over Red River, between St. Boniface and Winnipeg.

Prince Rupert, B. C.—Plans have been completed by City Engineer for construction of a bridge over Morse Creek. Cost, \$100,000.

Vancouver, B. C.—See "Paving and Roadmaking."

PAVING AND ROADS.

Items Arranged Geographically

Augusta, Me.—Contracts for constructing State Highways awarded by State Highway Comrs., May 14, as follows: Fryeburg Section, Jas. H. Kerr, Rumford, \$24,272; Woolwich No. 1, Ahern Constr. Co., Williamette, Conn., \$15,940; Woolwich, No. 2, F. E. Ellis, Melrose, Mass., \$15,165; Wiscasset, No. 1, John G. Fleming, Lincoln, \$13,294, and Wiscasset, No. 2, Small & Ingalls, Bar Harbor, \$14,829.

Windham, N. H.—Contract for macadam highway construction awarded to Jas. A. Watkins, Amesbury, Mass., \$4,000.

Massachusetts—Contracts awarded by State Highway Comm., Boston, as follows:

• **Marion:** Awarded to Luigi C. Carchia, 16 Foster St., Boston, at \$9,388. (Bids opened May 5).

• **Medford:** Awarded May 7 to Coleman Bros., Chelsea, at \$3,418.

Boston, Mass.—Newbury and Marlboro Sts. are to be paved.

Haverhill, Mass.—Council considering new macadam paving; cost, \$100,000.

Boston, Mass.—Contract for paving with bitulithic Avey St. awarded by Pub. Wks. Dept. May 7 to Coleman Bros., \$9,215.

Bids desired until May 25 by Commissioner Pub. Wks., for furnishing and laying about 13,980 sq. yds. 2-in. bituminous top surface on Marlborough St., City proper; also grading and paving with bituminous macadam, Old Colony Ave., South Boston and Dorchester.

Bids desired until May 26 by Massachusetts Highway Comm., Boston, for 2 highways, one in town of Bourne and one in town of Granby-Belchertown, 4200 ft. and 7900 ft. respectively.

Weymouth, Mass.—Contract for repairing tar concrete sidewalks awarded to Simpson Bros. Cor., 166 Devonshire St., Boston, \$4,000.

Springfield, Mass.—City is to spend \$65,000 on street improvements.

Connecticut—Contracts for construction of State road awarded by Chas. J. Bennett, State Highway Comr., Hartford, as follows:

• **East Hartford:** 6166 lin. ft. of macadam construction on Brewer St., to Leonard Suzio, Meriden, at \$8,012.30.

• **Essex:** Two-in. bituminous macadam on Centerville Rd., to Lane Constr. Cor., \$7,313.

• **Durham:** Macadam construction on Guilford Rd., to Frank Arrigoni & Bro., Middletown, \$8,000.

• **Montville:** Native stone macadam and a trap rock macadam surfacing, to A. Vito Constr. Cor., Thompson, \$19,695.

• **Redding:** A gravel road, to H. Sanford Osborn, Redding Ridge, \$6,856.

• **East Hartford:** A Hassam paving on Burnside Ave., to Connecticut Hassam Paving Co., New Haven, \$11,070.

• **Plainville:** Amiesite pavement, to Connecticut & Rhode Island Co., Meriden, \$6,800.

• **Bethlehem:** Native stone macadam, to John DeMichiel & Bro., Torrington, \$15,922.

• **Champlin:** Gravel road, to A. B. Cadwell, New Britain, \$4,642.

• **Danbury, Conn.**—Contract for paving Main St. with Amiesite awarded by Common Council to Chas. T. Eastburn Co., at \$1.10 per sq. yd.

Greenwich, Conn.—Bids desired until May 29 by Supt. of Highways, Town Hall, for about 3600 sq. yds. of concrete and telford pavt. on Havemeyer Road, advertised in Engineering Record.

New Britain, Conn.—Bids desired by Bd. Pub. Wks., until June 2, for 20,000 to 25,000 sq. yds. sheet asphalt, or other standardized pavement, on old macadam base, advertised in Engineering Record. Wm. H. Hall, City Engr.

New York, N. Y.—Contract for furnishing wood paving block to Dept. Bridges awarded to American Creosoting Co., 95 Liberty St., at \$6,812.

Bids desired until May 27 by Pres. Boro. Manhattan, for regulating and repaving portions of Park Ave., E. 74th Prince and several other streets, in all 52,230 sq. yds. sheet asphalt, heavy traffic mixture, 14,190 sq. yds. special granite block pavt., etc.

New York, N. Y.—Bids opened May 13 by President Bronx Boro. for paving as follows:

• Repaving with sheet asphalt and asphalt blocks on concrete foundation, W. 164th St. from Summit Ave. to Anderson Ave.: Lowest bidder, Barber Asphalt Paving Co., 1125 sq. yds. sheet asphalt pavt. (light traffic mixture), \$1.02; 1145 sq. yds. 3-in. asphalt block pavt., \$1.92; 460 cu. yds. class B concrete, \$5; 600 lin. ft. new curb, \$1; 900 lin. ft. old curb, 40 cts.; total, \$6,606.

• Repaving with sheet asphalt on concrete foundation, E. 134th St., Southern Boulevard to Locust Ave.: Lowest bidder, Asphalt Constr. Co., 11,780 sq. yds. sheet asphalt pavt. (medium traffic mixture), \$1.07; 150 cu. yds. class B concrete, \$6; 200 lin. ft. new curb, \$1; 900 lin. ft. old curb, 40 cts.; total, \$14,064.

• Regulating, grading, setting curb, Matthews Ave., from Van Nest Ave. to Bronxdale Ave.: Lowest bidder, Litchfield Constr. Co., 300 cu. yds. excav., 20 cts.; 20,500 cu. yds. fill, 40 cts.; 3050 lin. ft. new curb, 65 cts.; 12,100 sq. ft. concrete sidewalk, 12 cts.; 1040 sq. ft. new bridge stone, 50 cts.; 700 cu. yds. dry rubble masonry, \$2; 110 cu. yds. class A concrete, \$6; 2300 lin. ft. guard rail, 20 cts.; 8300 lbs. steel reinforcement bars, 2 cts.; 2 type B inlets, \$40; 3 manholes, \$50; total, \$15,131.

• Regulating, regrading, setting curb, etc., Seneca Ave. from Hunts Point Ave. to Edgewater Rd.: Lowest bidder, M. Baird Contr. Co., 7575 sq. yds. granite block pavt. on sand foundation, \$2.50; 300 lin. ft. new curb, 80 cts.; 2700 lin. ft. old curb adjusted, 5 cts.; 380 sq. ft. new bridge stone, 60 cts.; 2700 sq. ft. old bridge stone, 8 cts.; 1000 sq. ft. new bluestone flag, 25 cts.; 3700 sq. ft. old flag, 5 cts.; total, \$20,191.

• Regulating, grading, setting curb, etc., Parker St. from Castlehill Ave. to Lyon Ave.: Lowest bidder, W. H. Callahan Contr. Co., 60 cu. yds. excav., 10 cts.; 7700 cu. yds. fill, 38 cts.; 2765 lin. ft. new curb, 75 cts.; 13,720 sq. ft. concrete sidewalk, 14 cts.; 990 sq. ft. new bridge stone, 50 cts.; 350 cu. yds. dry rubble masonry, \$2; 12 cu. yds. class A concrete, \$6; 25 lin. ft. 12-in. vitr. pipe, 75 cts.; 25 lin. ft. 18-in., \$1; 1 M ft. timber, \$30; 2500 lin. ft. guard rail, 22 cts.; 1055 lbs. steel reinforcement bars, 5 cts.; total, \$8,870.

Long Island City, L. I., N. Y.—Bids desired until May 27 by Boro. Pres., for regulating, grading, curbing and laying sidewalks, on portions of Ditmars Ave., Newton Rd. and 3 other streets, in all 52,650 sq. ft. cement sidewalk, 23,000 sq. ft. bluestone flagstone, etc.

Yonkers, N. Y.—See "Sewerage and Sewage Disposal."

Buffalo, N. Y.—See "Railroads"

Oswego, N. Y.—Board of Pub. Wks. is about to let contract for 3650 sq. yds. brick pavement.

Deposit, N. Y.—Citizens voted to pave 2d and Pine Sts.

Rochester, N. Y.—Contracts for paving with asphalt awarded by Bd. of Contract and Supply as follows: Blossom Rd., to Whitmore, Rauber & Vicinus, 279 South Ave., \$19,636, and Breck St. to Rochester Vulcanite Paving Co., \$13,204.

Troy, N. Y.—Contract for paving Burden Ave. and 1st St. awarded by City Council to Parker-Hassam Co., at \$15,826.

Albany, N. Y.—Bids desired by State Comm. Highways, 55 Lancaster St., until June 8, for improvement and repair of highways, advertised in Engineering Record.

Niagara Falls, N. Y.—Common Council voted to macadamize Ferry and Willow Aves. and James and 10th Sts.

Buffalo, N. Y.—Contracts awarded by Common Council for paving as follows: German Rock Asphalt & Cement Co., D. B. Morgan Bldg., for Genesee, Washington, Main Sts., Montrose, Norwalk and Roanoke Ave., at \$133,440; to Henry P. Burgard Co., 560 Walden Ave., for W. Ferry and Sycamore Sts., at \$9,955; to Constantine Constr. Co., with brick, Tift St., \$24,100; to Erie Contr. Co., with brick, Folger St., \$8,700.

Common Council voted to pave Dewey, Saratoga and Storz Aves. and Taft Pl.

• **Lockport, N. Y.**—Contract for constructing Slayton Settlement Rd. from Lockport to Wrights Corners awarded by Bd. Supervs. to F. E. Dean Co., Youngstown, at \$61,290.

Corning, N. Y.—Common Council voted to repave with brick Market St.

Newark, N. J.—Lowest bid opened by Roads and Assessment Com. of Bd. of Freeholders for furnishing about 400,000 gals. road oil submitted by Standard Oil Co. at 5.9 cts. per gal.

• **Flemington, N. J.**—Contracts for constructing roads awarded by Bd. Chosen Freeholders as follows: 5½ miles of Flemington section of Frenchtown Rd., to J. L. Lacompe, Lakewood, at \$72,190, and section of road from Stryker's Crossing on Whitehouse-Lebanon Rd., to New Germantown, to M. Irving Demarest, Sewaren, at \$37,573.

Next 3 lowest bids on above roads: Flemington-Frenchtown Road—M. Irving Demarest, Sewaren, N. J., \$74,979; Sigaritos & Pomeroy, Riegelsville, Pa., \$82,667; Kelley, McFellay Co., Camden, N. J., \$90,375.

Whitehouse-New Germantown Road—Burke & Bonham, Plainfield, N. J., \$40,284; Humphrey & Bentley, Elizabeth, N. J., \$42,553; J. L. LeCompte, Lakewood, N. J., \$45,642. Grant Davis, County Engr., Flemington.

Atlantic City, N. J.—Bids desired until June 4 by Bd. City Comrs. for improving Ventnor Ave. and portions of Trenton and Harrisburg Aves., advertised in Engineering Record. John W. Hackney, City Engr.

Woodbury, N. J.—Bids desired until June 4 by City Clerk for paving S. Broad St. with Warren bitulithic 974 sq. yds., advertised in Engineering Record. Wm. M. Carter, City Engr.

Belvidere, N. J.—Bids desired until June 2 by Committee Co. Bd. Chosen Freeholders for 4.107 miles waterbound macadam road, Sect. 1, Washington-Buttville Rd. F. W. Salmon, Co. Engr., Netcong.

• **Millburn, N. J.**—Contract awarded May 11 by Township Com. for creating 60,000 sq. yds. public road with asphaltic oil, or refined coal tar, to Walter S. French, Moorestown, at 4 cts. per sq. yd.

• **Greensburg, Pa.**—Contracts for brick paving awarded by Borough Council as follows: Taylor and W. Pittsburg Sts., to Jas. H. Offutt; Greensburg and Washington Sts., to Luther F. Edwards, Greensburg, at total of about \$20,000.

• **Wilkes-Barre, Pa.**—Bids desired until May 26 by City Clerk for curbing and paving with sheet asphalt certain streets, about 37,000 sq. yds. pavt.

• **Pittsburgh, Pa.**—Contracts awarded by County Comrs. May 12, as follows: 1½ miles brick on Emsworth and Haysville Rd. to Henry Hileman, at \$61,410; 2 miles brick on West Run Extension Rd. to Ott Bros., 414 Warrington Ave., at \$54,148.

• **Contract for furnishing about 200,000 gals. asphalt road oil awarded by County Comrs. to Atlantic Refining Co., at 4.38 cts. per gal.**

• **McKeesport, Pa.**—Contract for repaving 5th Ave. awarded by City Comm. to Bowman Bros. Co., at \$10,000.

• **Oil City, Pa.**—Bids desired until June 8 by City Controller, for paving 6th St., about 8000 cu. yds. excav., 9000 sq. yds. brick, asphalt or bituminous concrete pavt., 7100 ft. concrete curb and gutter, 1600 ft. 6 and 10-in. sewer. B. B. Weber, City Engr.

Chestertown, Md.—See "Sewerage and Sewage Disposal."

Baltimore, Md.—Bids desired until May 27 by Bd. Advs., care of City Register, for grading, curbing and paving with sheet asphalt, vitr. block and Scoria block, all on concrete base, Baltimore St., advertised in Engineering Record. R. Keith Compton, Chmn. and Consulting Engr., Paving Com.

★**Baltimore, Md.**—Contract No. 132, involving paving of streets in extreme northwestern section of Annex reported awarded May 13 by Bd. of Awards to Baltimore Asphalt Block & Tile Co., at \$166,021.

★**Washington, D. C.**—Bids desired until June 1 by Comrs., D. C., for making repairs to asphalt pavements, advertised in Engineering Record.

★**Wytheville, Va.**—Bids desired until June 1, by County Clerk for constructing about 4 miles of macadam road between Farmers Store and Laswell, Wythe County.

★**Ft. Myer, Va.**—Bids desired until June by Quartermaster for reconstructing heavy traffic road from Signal Corps post to point near Administration Building, advertised in Engineering Record.

★**Roanoke, Va.**—Bids desired until June by City Clerk, for improving portions of Franklin Rd., Patterson Ave. Park, 1th and several other streets. Bids desired for concrete bottom, macadam and bituminous macadam pvt.; also granite sidewalks on Highland and 4 other avenues.

★**New Cumberland, W. Va.**—Bids desired until May 28 by County Court, New Cumberland, for grading, bridging and paving with brick, Sect. 2, permanent road improv., Butler Dist., about 1 mile.

★**Raleigh, N. C.**—Contract for 100,000 sq. yds. asphalt concrete pvt.; 5,000 ft. combined concrete curb and gutter, concrete foundation awarded to T. R. G. Lassiter, Oxford. R. B. Seawell, City Engr.

★**Raleigh, N. C.**—City Comm. sold \$100,000 road improvement bonds.

★**Hertford, N. C.**—See "Water Works."

★**Miami, Fla.**—See "Sewerage and Sewage Disposal."

★**Mobile, Ala.**—Contract for constructing 3 miles state highway on Telegraph Rd. awarded by Bd. Revenue and Road Comrs. to R. C. Searcy & Co., Greenville, 6,530.

★**Ft. Deposit, Ala.**—Citizens of Lowndes County voted to construct roads.

★**Aberdeen, Miss.**—This city will let about 50,000 street improvements June 2, and Fourth District Good Road Commission, of Monroe County, will let contract for treatment of macadamized highways with bituminous binders also on June 2. Gus. Hauser, Engr., 4th Dist. Road Comm.

★**Belmont, La.**—Bids desired until May 30 by Bd. State Engrs., New Orleans, for highway from Belmont, south, about 6 miles.

★**Louisville, Ky.**—Lowest bid opened by Fiscal Court supplying and spreading 75,000 gal. oil on roads in Jefferson County submitted by Kentucky Asphalt Road Co., at 5.39 cts. per gal., or total \$9,432.

★**Versailles, Ky.**—Bids desired until June 16 by City Clerk for furnishing material and laying about 6000 sq. yds. vitr. brick pvt. on concrete foundation, Chas. E. Collins, Engr., Drexel Bldg., Philadelphia, Pa.

★**Burlington, Ky.**—Bids reported until June 1 for constructing 20 miles macadam road, with bridges.

★**Ohio**—Result of bids opened May 15, by State Highway Com., Columbus:

★**Lake County**—Sec. 1, Painesville-Warren; concrete, length 1.34 miles, awarded to B. F. Hewitt, Jefferson, \$17,115.

★**Belmont County**—National Rd.

Sec. 1, 3.61 miles in Pease and Cole-raine Twp. (award withheld).

★**Sec. 2**, 4.20 miles in Pease and Richland Twp., awarded to Turner-Olsen Contr. Co., Youngstown.

★**Crawford County**, Bucyrus-Tiffin Rd., waterbound macadam, length 1.14 miles, and Bucyrus-Plymouth Rd., waterbound macadam, length 1.25 miles. Type of construction to be changed.

★**Columbus, O.**—Contracts awarded by Bd. of Control for paving as follows: 4th St. Viaduct and approaches to Geo. Geiseler & Son, Columbus, \$37,796; Hague Ave., to D. E. Sullivan & Son, \$33,577; Leona Ave., to Burns & Sullivan, \$14,159, and 2d Ave., to Andrews Asphalt Paving Co., \$26,936.

★**Bids desired until June 2** by Director Pub. Service, for constructing sidewalks on Barthman and Belmont Aves., High and numerous other streets.

★**Youngstown, O.**—Bids desired until June 2 by Director Pub. Service, for paving Lauderdale and Truesdale Aves.

★**Cleveland, O.**—Bids desired until June 3 by Co. Bd. Comrs. for improving Rockside Rd., from Brecksville to Broadview roads.

★**Defiance, O.**—About \$31,000 county road bonds sold.

★**Kent, O.**—Contract for paving E. Main St. (bids opened May 9) awarded to Kent, Constr. Co., \$27,221.

★**Ashland, O.**—Bids desired until May 27 by Director Pub. Service, for grading, curbing and paving with brick, asphalt, asphalt block or other suitable material, Ohio St.

★**Ohio**—Contracts awarded Apr. 30 by State Highway Com., Columbus, for grading and paving as follows:

★**Lima, Allen Co.**, Ottawa Rd.; brick; length, 1.23 miles; to Henry J. Enck, Lima, \$30,995.

★**Springfield, Clark Co.**—Washington C. H. Rd.; W. B. macadam; length, 2.60 miles; to Graham & Kinnear, Columbus, \$22,618.

★**Stuebenville, Guernsey Co.**—Cambridge Rd.; concrete; length, 1 mile. No bids.

★**Dunlap, Hamilton Co.**—Springdale Rd.; W. B. M. and concrete; length, 3.18 miles; to John Ruebel Constr. Co., Bridge-town, \$40,800.

★**Cleve, Medina Co.**—Hinckley-Medina Rd.; concrete; length, 1.38 miles; to Geo. S. Mellert, \$14,385.

★**Sec. 2**, St. Marys, Mercer Co.—Ft. Wayne Rd.; concrete; length, 2.54 miles; to Lewis & Burnett, Rockford, \$34,862.

★**New Lexington, Perry Co.**—McCon-nelsville Rd.; W. B. M.; length, 1.48 miles; to Lamb & Neel, Thornville, \$18,703.

★**Hillsboro, Ross Co.**—Chillicothe Rd.; concrete; length, 1 mile; to S. M. Darby, Frankfort, \$14,241.

★**Chillicothe, Ross Co.**—Lancaster Rd.; concrete; length, 1 mile; to J. F. Perry, Chillicothe, \$12,467.

★**Bucyrus, Seneca Co.**—Tiffin Rd.; W. B. macadam; length, 1 mile; to Seiple & Wolfe, Toledo, \$11,733.

★**Ridgely, Van Wert Co.**—Ft. Recovery Rd.; W. B. macadam; length, 1 mile; to Mustard Bros., Ada, \$4,819.

★**Ohio**—Bids desired until June 2 by State Highway Com., Columbus, for grading, paving, constructing bridges, culverts, etc., following roads (specification on file with County Comrs., also at office of State Engr., but all bids should be addressed to State Engrs. at Columbus):

★**Urbana, Champaign Co.**, Piqua-Urbana Rd., waterbound macadam. Length 8024 ft. Cost \$17,244.

★**Defiance, Defiance Co.**, Hicksville-Defiance Rd., waterbound macadam. Length 33,300 ft. Cost \$53,951. Alternative bids received for concrete. Cost \$56,139.

★**Gallipolis, Gallia Co.**, Ohio River Rd., brick. Length 4800 ft. Cost \$14,660.

★**Kenton, Hardin Co.**, Kenton-Forest Extension Rd., waterbound macadam. Length 1490 ft. Cost \$1,835.

★**Norwalk, Huron Co.**, Oberlin-Norwalk Rd., Wakeman Township; Oberlin-Norwalk Rd., Townsend Township; Bellevue Norwalk Rd., Ridgfield Township; all of concrete. Length 5640 ft., 13,602 ft. and 5630 ft. respectively. Cost \$15,874, \$38,820 and \$25,872, respectively.

★**Dayton, Montgomery Co.**, Cincinnati-Dayton Rd., brick. Length 12,021 ft. Cost \$45,842.

★**Paulding, Paulding Co.**, Payne-Hicks-ville Rd., concrete. Length 2981 ft. Cost \$7820.

★**Warren, Trumbull Co.**, Niles-Ashtabula Rd., concrete. Length 14,910 ft. Cost \$22,265.

★**Bryan, Williams Co.**, Bryan-Defiance Rd., waterbound macadam. Length 5335 ft. Cost \$8596.

★**Cambridge, Guernsey Co.**, Steubenville-Cambridge Rd., concrete. Length 5280 ft. Cost \$14,585.

★**Elmore, O.**—Contract awarded May 18 for 6930 sq. yds. block pavement, etc., to A. Witte, Elmore, O., at \$15,976. Other bidders: Modern Constr. Co., Fremont, \$16,532; G. A. Weir, Elmore, \$16,215; Morsman & Green, Grand Rapids, Mich., \$16,440; Rimesplach & Thoma, Fremont, \$16,990. Wm. Haley, Village Clk.

★**Toledo, O.**—Contracts awarded by Bd. of Control for paving as follows: With brick, Clayton St., Harris & Tansey, \$10,045; concrete, Chase St., Peter H. Waters, \$14,097; Buckingham and Cleveland St. and Grand Ave., to Russell & Jennison, 313 Huron St., \$35,618.

★**Bids desired until June 12** by Co. Auditor for repair of Lewis Ave., Stone Road No. 27, Washington Township.

★**St. Clairsville, O.**—Bids desired until June 2 (advertisement) by State Highway Comr., Columbus, for grading, paving roadway and constructing bridges, culverts, masonry and drainage structures, National Road in Belmont County, Richland, Union and Kirkwood townships; length, 87,751 ft.; advertised in Engineering Record.

★**Dayton, O.**—Lowest bids opened May 11 by Director Pub. Service for paving with Trimble block—May St., H. E. Barney, \$16,071; Neal St., Clifton Hoolihan, \$4,375.

★**Contract for paving Virginia Ave.** awarded by City Comm. to Clifton Hoolihan, at \$8,795.

★**Cincinnati, O.**—Contract awarded May 8 by County Comrs. for improving Clough Creek Pike, Anderson Township, to Van Camp Bros., Newtonville, at \$18,667.

★**Bids desired until June 3** by County Comrs., for improving Rockside Rd. from Brecksville to Broadview Rds.

★**Bids desired until June 1** by Director Pub. Service, for paving with wood block on Middleton Ave. and with asphaltic concrete on St. Michaels St.

★**Whitehouse, O.**—Bids desired until May 26 by Village Clerk for grading, draining, curbing and paving Providence St., about 6500 sq. yds. pvt.

★**Greenford, O.**—Contract awarded May 9, for constructing 2 road with crusher run base, slag macadam, to Fleming, Hawn & Platt, Youngstown, at \$34,982. L. E. Coy, Clk. Co. Comrs.

★**Hamilton, O.**—About \$100,000 to be spent on State roads in Butler County.

★**London, O.**—Bids desired until May 27 by Co. Comrs. at London for macadamizing Beyer Joint Rd., Canaan Township, Madison Co., and Brown Township, Franklin Co.

★**Contract awarded May 12** by Village Council for paving N. Main St. with 2-in. asphalt block, to Toledo Asphalt Block Co., Toledo.

★**Ellyria, O.**—Contract for paving with brick on Oak, S. Forest and Mechanic Sts., and College Pl. awarded by City Council to Lininger & Bennett, Conneaut, at \$21,452.

★**Findlay, O.**—Contracts awarded by County Comrs. for constructing 6 miles roads as follows: 2-mile road in Union Township, to Edgington Bros., \$8,594; 2 miles on Williamstown Rd., to J. W. Semler, \$8,990, and 2 miles of Otsego Rd., to Fred Kleinman, \$9,330.

★**Indiana**—Bids desired by County Commissioners for constructing roads as follows:

★**Until June 1:** Franklin, gravel roads in Blue River and Nineveh townships.

★**Williamsport, macadam road** in Adams Township and concrete road in Washington Township.

★**Versailles, macadam roads** in Delaware and Laughery townships.

★**Until June 2:** Anderson, gravel road in Stonycreek, Lafayette, Union and Anderson townships.

★**Lebanon, 2 gravel roads.** Delphi, 5 macadam and gravel roads in Washington, Burlington, Dear Creek, Carrollton and Jackson townships.

★**Monticello, 2 roads** in Princeton Township.

★**Marion, 3 roads** in Center Township, a gravel road in Monroe and Jefferson townships and 2 gravel roads in Center Township.

★**Bloomfield, 2 macadam roads** in Richland Township.

★**Until June 3:** Kokomo, 8 roads in Howard, Taylor, Center and Monroe townships.

★**Until June 4:** Huntington, gravel road in Rock Creek Township, less than 3 miles long.

★**Crown Point, gravel roads** in North, Cedar Creek, Center and Eagle Creek townships.

★**Scottsburg, gravel roads** in Finley, Johnson and Vienna townships.

★**Until June 5:** Columbus, macadam road on line between Clifty Township, Bartholomew Co., and Jackson Township, Decatur Co., 10,135 ft. long.

★**Elkhart, Ind.**—City Engineer estimates cost of paving as follows: Jackson St., \$51,250; N. Main St., \$16,100; Sherman St., \$9,000.

★**Evansville, Ind.**—About \$14,400 gravel road bonds were sold by County.

★**Logansport, Ind.**—Bids desired until May 29 by Bd. Pub. Wks., for improving High and W. Market St., in all 29,000 lin. ft. curb, 8000 sq. ft. sidewalk, 46,000 sq. yds. pvt., 35,000 cu. yds. excav. Cost \$163,000.

★**Winamac, Ind.**—Town Clerk desires bids June 1 for construction of 4609 cu. yds. brick paving. C. E. Paul, Town Engr.

★**Contract for constructing James Hoover Gravel Rd.** awarded to Barnes & Smith, Logansport, at \$6,750.

★**Richmond, Ind.**—Following lowest bids opened by Bd. of Works for paving: Cronin & Meredith, at \$1.86 per sq. yd. for brick on N. 7th St., and Mather Kelly, at \$1.29, for concrete on 10th St.

★**Gary, Ind.**—Bids desired until May 25 for about 3491 sq. yds. concrete pvt., 5510 cu. yds. grading, 1357 sq. yds. sidewalk, etc. Estimated cost, \$8,792. Wm. J. Fulton, City Engr.

★**Lowest bids opened May 11** by City Council for paving Alley No. 11, West Sec. 1, 3366.5 yds. concrete pvt., submitted by Milton D. Heiny, \$5,325.

★**Petersburg, Ind.**—Contract for constructing 7½ miles of improved roads in Washington Township awarded to J. N. Kinman, Petersburg, at \$29,750.

★**Beulah, Mich.**—Bids desired until June 10 by Highway Comr., township of Joyfield, for about 1 mile State Reward road.

★**Stockton, Ill.**—Contract awarded May 11, for paving 4 blocks with brick, to Gun-Graham Co., Freeport, at \$16,435. Geo. H. Brown, Village Clerk.

★**Elgin, Ill.**—Contracts awarded May 12 by Bd. Local Improv. (W. H. Brightman, Engr.), as follows: S. State St., 10,696 sq. yds. brick, to Logan & Gierz Constr. Co., Elgin, \$22,938; Park St., 15,953 sq. yds. asphaltic concrete, to McCarthy Improv. Co., Davenport, \$29,945; Commonwealth Ave., 2336 sq. yds. asphaltic concrete, to Western Improv. Co., Racine, \$4,431; Vincent Pl., 2459 sq. yds. asphaltic concrete, also to Western Improv. Co., at \$4,901.

★**Fairgrange, Ill.**—Bids desired until May 30 by Comrs. Highways, Town Seven Hickory, at office T. N. Cofer, Atty. First Natl. Bank Bldg., Charleston, for constructing 4 sections, about 5300 ft., waterbound macadam road, 9 ft. wide. M. C. Foreman, Town Clk., Fairgrange.

★**East St. Louis, Ill.**—City Council voted to pave with concrete Maple and Forest Aves. with concrete; cost, \$15,640.

★**Rosemond, Ill.**—Bids desired until June 2 by Highway Comrs., Rosemont Township, for improving Robt. Little Rd., ¾ miles in length, requiring 29,000 sq. yds. vitr. brick pvt., 34,000 lin. ft. curb, 296 lin. ft. concrete culverts, 3 reinforced concrete bridges.

★**Quincy, Ill.**—Contract for paving Hampshire St. awarded by Bd. Local Improvements to Rees Bros., at \$13,650.

★**Galesburg, Ill.**—Contract for paving South St. awarded by Bd. of Local Improvements to J. B. McAuley, Galesburg, at \$28,553.

★**Bloomington, Ill.**—Contract for paving Clinton and Olive Sts. awarded by Bd. Local Improv. to I. D. Lain, at \$15,973.

★**Minonk, Ill.**—Contract for 34 blocks brick and concrete pavement awarded by City Council to I. D. Lain, Bloomington, at \$107,305.

★**Neenah, Wis.**—Bids desired until June 10 by Secretary Bd. Pub. Wks., for improving W. Doty Ave. and Brien St.

★**Somers, Wis.**—Contract for constructing Burlington and Somers Rd. awarded to Geo. R. Wade, Kenosha, at \$26,650.

★**Milwaukee, Wis.**—Contracts for paving awarded by Comr. Pub. Wks. as follows: With creosote blocks, Lisbon Ave.; with sandstone, Island Ave., 3d and Johnson Sts., to Hase & Welher, at \$80,550; with creosote blocks, Lee St., to J. H. Donahue, 318 Bradford Ave.

★**Two Rivers, Wis.**—Contract for paving with macadam 3 miles streets awarded by Bd. Pub. Wks. to W. O. Bahr, Manitowoc, at \$32,275.

★**Eddyville, Ia.**—See "Water Works."

★**Ottumwa, Ia.**—Only bid opened by City Comm. for paving Vine St. submitted by J. C. Blunk, at \$2.15 per sq. yd. for brick.

★**Marshall, Minn.**—Bids desired until June 2 by County Auditor, for constructing State rural highway No. 54, requiring approximately 27,850 lin. ft. turnpiking, 87,390 cu. yds. excav., 19,850 cu. yds. gravel, 82 concrete culverts, etc. Total length of road, 23¼ miles. Cost, \$51,668.

★**Rochester, Minn.**—Bids reported received until May 25 for paving portions of Cascade Rd., E. and W. 5th Sts., in all 43,518 sq. yds. Cost, \$91,947. Address City Clerk.

★**Akeley, Minn.**—Contract for constructing Nevis Park Rapids Rd. awarded to Jas. Wilkins, Akeley, at \$15,500.

★**Smokey Hollow, Minn.**—See "Bridges."

★**Atchison, Kan.**—Bids desired by City Clerk until June 1, for curbing and paving Commercial St., 4000 lin. ft. combined curb and gutter, 12,500 sq. yds. paving. Frank S. Altman, City Engr.

★**Lincoln, Neb.**—Contract awarded May 5, for paving Dist. 277, 14th St. to Burke-Chochrane Constr. Co., 1029 N. St. Lincoln. Cost about \$15,000. Asphalt concrete will probably be used.

★**Falls City, Neb.**—Contract awarded May 14, for paving Dist. 12 with brick, to Boher Bros., of Falls City. Dist. 8 opened same time to be readvertised. Address City Clerk.

★**Ft. Benton, Mont.**—Bids desired until June 1 by City Clerk, for constructing approximately 21,780 sq. yds. waterbound or bituminous macadam, 23,305 sq. ft. concrete sidewalk, 41 1-light and 8 3-light electroliters, 7175 lin. ft. conduit, 22,000 lin. ft. wire for lighting system, irrigation system for about 10 blocks parking, etc. Gerharz-Jaqueth Eng. Co., Engrs., Great Falls.

★**Hamilton, Mont.**—Contract for paving streets with concrete awarded by City Council to Lord Constr. Co., at \$10,000.

★**Lewistown, Mont.**—Contract about to be let by City Council for constructing sidewalks.

★**St. Louis, Mo.**—Contract for paving with brick Bartmer Ave., University City awarded by City Council to F. M. McMahon, Wainwright Bldg., at \$22,000.

★**Contract awarded by Bd. Public Improv.** Block Reconstruction: Delmar Boule., from Taylor Ave. to Kings Highway, Skrainka Constr. Co., Security Bldg., \$21,343.03; 7th St., from Bway, to Park Ave., Fruin-Colon Contr. Co., Merchants-Laclede Bldg., \$86,999.

★**Telford with Oil-Treatment, Granitoid Curb and Gutter**—Bradley Ave., from Ivanhoe Ave. to Bradley Ave., to Webb-Kunze Constr. Co., 5927 Fyler Ave., St. Louis, \$13,426.05; Bruno Ave., from Forest Ave. to Western City Limits, Frank T. Adler, Holland Bldg., \$4,742.65.

★**Block Reconstruction**—McNulty St., from 18th Street to Vail Place, Eyerlyman Constr. Co., 1216 S. Grand Ave., \$2,221.

★**Kansas City, Mo.**—Bids desired until May 26 by Bd. Pub. Wks., for paving with Portland cement concrete Grove, S. Benton and 10th Sts., and artificial stone sidewalks on Campbell, Genessee and several other streets.

★**Little Rock, Ark.**—Contract for constructing 12th St. Pike in Pulaski Rd. Improvement Dist. awarded to McCarthy & Peay, at \$34,765.

★Items marked thus give the names of parties awarded contracts.

★Pine Bluff, Ark.—Contract awarded May 5 for 10,500 sq. yd. brick paving, asphalt fill, to Turkis & Petty, Little Rock, at \$1.65 per sq. yd. (using present concrete base).

Texas.—Bond issues were recently voted for paving as follows: New Braunfels, \$17,000; Denton, \$22,500; Hays, \$100,000; Kaufman, Crandall Precinct, \$150,000; Kaufman, Terrel and Elmo Precinct, \$300,000.

Mart, Tex.—Bids desired until June 1 by Commissioner Streets and Pub. Improv., for paving Texas Ave. and Pearl St., approximately 17,400 sq. yds. pavt., 4560 lin. ft. combined curb and gutter. Bids desired for bitulithic, bituminous concrete, brick laid flat, creosoted wood blocks, granited concrete and Hassam. Lake Robertson, City Engr.

Harlingen, Tex.—Bids desired until June 15 by City Clerk for constructing approximately 182,000 sq. ft. sidewalk, 21,350 lin. ft. curb and 9500 lin. ft. curb and gutter. Sidewalk and Curb Improv. Dist. No. 1.

McKinney, Tex.—Bids desired until May 26 for 25,000 sq. yds. brick or asphalt paving, concrete curb and 5-in. concrete foundation; cost, \$60,000. Chas. Schultz, City Engr.

Bids desired until June 1 by County Judge for \$930,000 road district nbds.

★Houston, Tex.—Contract for paving with asphaltic concrete. McGowan St. awarded by City Council to Eureka Paving Co., at \$9,500.

Rogers, Tex.—Citizens voted to issue \$250,000 road improvement bonds.

★Marietta, Okla.—Contract for 20,000 sq. yds. vibrolithic concrete paving awarded May 11 by City Council to Western Paving Co., Oklahoma City, at \$2.13 per sq. yd. Other bidders: R. R. Fuller, Oklahoma City, \$2.33; Chas. M. Shaw, Lawton, \$2.27; Cleveland Trinidad Co., Oklahoma City, \$2.24. Benham Eng. Co., Oklahoma City, Engrs.

Pagosa Springs, Colo.—Bids desired until May 29 by Bd. Constr. for construction of 2 portions of State Road No. 15. W. W. Reilly, Constr. Engr., Monte Vista.

Colfax, Wash.—Bids desired until June 1 by State Highway Bd., Olympia, for improving about 8.3 miles Inland Empire Highway from Colfax northerly in Whitman County.

Tacoma, Wash.—Bids desired until May 28 by Co. Comrs. for improving Permanent Highway No. 5, including grading and paving with asphalt or Warrentite about 2.41 miles.

Port Angeles, Wash.—Bids desired by Co. Comrs. until June 2 for clearing, grubbing, grading and graveling Permanent Highway No. 3 and Port Angeles-Port Crescent Highway.

Corvallis, Wash.—Construction of municipal asphalt paving plant contemplated.

Pullman, Wash.—City Council considering macadam paving of 14 business streets.

★Montesano, Wash.—Contract for constructing road from Montesano east awarded to Pugh & Arenz, Monroe, \$18,250.

Republic, Wash.—Bids reported desired until June 10 by County Comrs. for improving mile of road between here and Danville.

★Mt. Vernon, Wash.—Contract paving with concrete East Side Road awarded to S. Stevens at \$6,000.

★Everett, Wash.—Contract for paving awarded by City Council May 4 to Atlas Constr. Co., Everett, at \$35,765.

Lowest bid opened by County Comrs. May 5 for paving Sultan Startup Rd. submitted by Bensett Bros., Everett, at \$14,770.

★Anacortes, Wash.—Contract for paving awarded to Washington Paving Co., Savage-Scofield Bldg., Tacoma, \$70,000.

Seattle, Wash.—Lowest bid opened May 8 by Bd. Pub. Wks. for paving with brick 2d Ave. submitted by W. Kopta, 1422-27 Ave., at \$73,944.

★Vancouver, Wash.—Contract for paving and grading Highway 2A awarded to Hayden Bros. & Bidwell, Spaulding Bldg., Portland, Ore., at \$19,385.

★Colfax, Wash.—Contract for macadamizing and curbs awarded to John Fife and Wm. Pointer, at \$7,000. County Comrs. awarded contract to Leonard & Fitzhugh, North Yakima, for macadamizing 3 miles of highway.

Portland, Ore.—City engineer completing plans for improvement Hillside Boule.; cost \$100,000.

★Astoria, Ore.—Contract for constructing Clatsop County Highway, awarded to Bayajohn Arnold Co., Panama Bldg., Portland, \$246,000.

★St. Helens, Ore.—Contract awarded May 6 for constructing Columbia Highway to Consolidated Contract Co., Portland, at \$280,751. Other bidders (all of Portland): Bayajohn-Arnold Co., \$336,037; Twilby Bros. Co., \$294,262; Robt. Wakefield, \$305,326; A. D. Kern, \$355,768; Flag & Strindler Co., \$328,776. H. E. La Bare, County Clk.

Dayton, Ore.—Bids desired until June 1 by City Recorder for 6000 sq. yds. concrete paving on Ferry St.

Oregon City, Ore.—Contract for macadamizing River Rd. awarded by County Court to Cromer & Norris, at \$11,996.

California.—Bids desired until June 8 by California Highway Comm., Forum Bldg., Sacramento, for constructing roads as follows:

Tehama Co., 8.8 miles, Portland cement concrete road.
Butte Co., 11.2 miles, Portland cement concrete road.

Glenn Co., 7 miles, Portland cement concrete road.

Shasta Co., 9.9 miles, road to be graded.

★Los Angeles, Cal.—Contract for paving Los Angeles St. awarded by Bd. Pub. Wks. to Fairchild, Gilmore, Wilton Co., Pacific Electric Bldg., at \$9,934.

★San Jose, Cal.—Contract awarded by County Superv. May 11 to J. S. Adams, San Jose, at \$9,387 for paving Senter Rd. Local press reports state that bids desired until June 1 by County Bd. Superv., for improving Piedmont Rd., a distance of 4 miles.

Hermosa Beach, Cal.—Bids reported desired until June 1 by City Clerk for approximately 7000 lin. ft. of 20-ft. roadway, including Palm Drive, including grading and paving with asphalt concrete, redwood curb and sewer, etc.

Santa Ana, Cal.—Bids desired until May 28 by Bd. Superv., for improvements of Sect. 4, Riverside Road.

Los Angeles, Cal.—Bids desired until June 1 by Clerk Co. Bd. Superv., for constructing oiled macadam pavt., reinforced concrete culverts, etc., on certain streets in Road Improv. Dist. No. 26; probable cost, \$24,735; also grading, curbing, guttering, sidewalks and grading certain streets in Road Improv. Dist. No. 46.

★Redwood City, Cal.—Contracts for constructing boulevard from Belmont School to county road, also for Woodside Rd. awarded by Bd. Superv. to Clark & Henry Constr. Co., Stockton, at \$13,227 and \$69,730, respectively.

★Oakland, Cal.—Contract for street improvements in Havenscourt awarded by E. J. Henderson to Bates, Borland & Ayers at about \$100,000.

★Tucson, Ariz.—Contract for paving Stone Ave. awarded by City Council to Arizona Asphalt Co., at \$41,885.

★Salt Lake City, Utah.—Contract for paving 3 West St. awarded to J. W. Mellen, at \$16,101.

Contract about to be let for paving 13th East St. from 1st South to 5th South and 5th South from 13th East to Mt. Oliver Cemetery.

Ogden, Utah.—Contract about to be let for paving 25th St.

★Orofino, Idaho.—Contract for constructing 7200 ft. wagon road along north fork Clearwater River awarded to Lamphier, Jansen & Opilger.

St. Marie's, Idaho.—Contract is about to be let by City Council for 18,000 sq. yd. paving and 20,000 cu. yd. embankment.

★Edmonton, Alta.—Contract for wood block pavement awarded to Dominion Creosoting Co., Vancouver, B. C., at about \$250,000.

Pictou, Ont.—Citizens voted \$20,000 for paving Main St.

Toronto, Ont.—Bids desired until May 26 by Mayor, Chmn. Bd. Control, for trap rock.

Ottawa, Ont.—Bids reported desired until May 26, for constructing approximately 7720 sq. yds. asphalt pavt. and 5650 lin. ft. concrete gutter. Arch. Currie, City Engr.

Regina, Sask.—See "Water Works."

★Victoria, B. C.—Contract awarded for 8-ton steam roller to Ritchie Contr. & Supply Co., Vancouver, at \$2,890 (bids opened Apr. 27). W. Galt, City Purchasing Agent.

Nanaimo, B. C.—Lowest bid opened May 2 for paving Albert St. submitted by J. A. Baxter, Nanaimo, \$17,856.

Vancouver, B. C.—Appropriations made by Provincial Government for road and bridge work in British Columbia calls for sums in following road districts: Alberni, \$60,000; Atlin, \$20,000; Cariboo, \$144,000; Chilliwack, \$37,000; Columbia, \$40,000; Comox, \$67,000; Cowichan, \$67,000; Cranbrook, \$46,000; Delta, \$25,000; Dewdney, \$77,000; Esquimalt, \$40,000; Fernie, \$46,000; Grand Forks, \$32,000; Greenwood, \$22,000; The Islands, \$30,000; Kamloops, \$80,000; Kaslo, \$40,000; Lillooet, \$73,000; Nanaimo City, \$10,000; Newcasttle, \$27,000; Okanagan, \$88,000; Richmond, \$140,000; Revelstoke, \$41,000; Saanich, \$56,000; Similklen, \$80,000; Skeena, \$216,000; Slokan, \$57,000; Yale, \$80,000; Ymir, \$40,000; road machinery, \$25,000; wharves, \$25,000; bridges, \$450,000; bridge across Second Narrows, \$400,000; development Strathcona Park, \$100,000.

STREET CLEANING AND GARBAGE DISPOSAL.

Items Arranged Geographically

East Orange, N. J.—Bids desired until May 25 by City Council for maintenance of scavenger system and disposal of garbage and other refuse for term of 3 years, beginning Aug. 1, 1914.

San Antonio, Tex.—The question of disposal of garbage by contract, or the construction of municipal garbage incinerator, reported under consideration.

HYDRAULIC CONSTRUCTION AND RIVER IMPROVEMENTS.

Items Arranged Geographically

Rock Removal—Boston, Mass.—Lowest bid opened May 13, by Directors Port of Boston, for breaking up and removing ledge rock, etc., in channel leading to Metropolitan Coal Wharf, South Boston Flats, submitted by Eastern Dredging Co., Boston, at \$2,450.

Pier—Boston, Mass.—Bids desired until June 16 by Directors of Port of Boston, 40 Central St., Boston, for constructing Commonwealth Pier No. 1, East Boston, advertised in Engineering Record. Frank W. Hodgdon, Ch. Engr.

★Dredging—Block Island, R. I.—Contract awarded by Col. John Mills, Corps Engrs., U. S. A., Newport, May 11, for dredging harbor at Block Island, to Chas. M. Cole, Fall River, Mass., at 24.9 cts. per cu. yd. Other bidders: Geo. W. Beeman, Hyde Park, Mass., 28.4 cts.; J. S. Packard Dredging Co., Providence, 31 cts.

★Stone for Dike—New York, N. Y.—Contract for rubble stone for dikes in Hudson River, opened Apr. 20 by Col. W. M. Black, Corps Engrs., U. S. A., awarded to M. S. Sickles, New Baltimore, N. Y., at \$1.14 per cu. yd.

Pier—New York, N. Y.—Lowest bid opened May 15 by Comr. Docks and Ferries for extending Pier 27, Hubert St., North River, Manhattan Boro., submitted by General Contr. & Eng. Co., 29 Bway., at \$2,480.

Dredging—New York, N. Y.—Bids desired until May 27 by Commissioner Docks, for Contr. 1431—Dredging at site of proposed improvement near foot W. 44th St., Boro. Manhattan. Security, \$12,000.

★State Canal Work—Albany, N. Y.—State Supt. of Public Works May 20 opened bids for improvement Cayuga and Bergholtz Creeks in Town of Niagara, to include widening and straightening Cayuga and Bergholtz creeks; raising bridge at Station 51 + 21.3 and removing two farm bridges, as follows (Engineer's estimate \$8,125): Holler & Shepard, Rochester, \$7,965 (awarded contract); Barrally & Ingersoll, Rochester, \$8,925; and Lathrop, Shea & Henwood Co., Buffalo, \$9,480.

★Contract 123, Barge Canal. awarded to Frank L. Cohen, 49 Niagara St., Buffalo, at \$16,573. This provides for construction of dam and sluice gate across West Canada Creek at Trenton Falls. (Unit prices of Contract 123 in Engineering Record of May 16.)

Dike Wall—Binghamton, N. Y.—Bids desired until June 10 by Bd. Contract & Supply for constructing a dike wall along Chenango River, and to remove an island in said river, known as Cumming's Island, advertised in Engineering Record.

Dredging—Philadelphia, Pa.—Bids desired until June 6 at Bureau Yards and Docks, Navy Dept., Washington, D. C., for Spec. 2074—Dredging in reserve basin, Navy Yard. Estimated cost, \$9,700.

Dike—Harrisburg, Pa.—Lowest bids opened May 9, by Water Supply Comm., Telegraph Bldg., for 2 sections of dike along western bank of Delaware River in Falls Township, submitted by Chas. T. Eastburn, Yardley, at \$12,896.

Dredging—Washington, D. C.—Bids desired until June 5 by Maj. C. W. Kunz, Corps Engrs., U. S. A., for dredging in Rappahannock River, Va.

Trestles, Etc., for Dam—Wheeling, W. Va.—Bids desired until June 18 by Maj. J. P. Jervey, Corps Engrs., U. S. A., for

Valves for Dam—Boise, Idaho.—Bids were opened May 7 by U. S. Reclamation Service, Los Angeles, Cal., for balanced valves for Arrowrock dam, Boise project, and 23 bids were submitted.

Following are 4 lowest bids—(a) Joshua Hendy Iron Wks., San Francisco, Cal., f. o. b. Sunnyvale, Cal.; (b) Power & Mining Machinery Co., New York (delivery Cudahy, Wis.); (c) Steacy-Schmidt Mfg. Co., York, Pa. (delivery York, Pa.); (d) Coffin Valve Co., Neponset, Mass. (delivery Neponset):

Item	(a)	(b)	(c)	(d)
7 lower plain control balanced valves (lump sum).....	\$23,170		\$26,381	\$20,100
Net weight of each valve in lbs.....	42,974		49,000	19,300
Item 2				
3 lower positive control balanced valves (lump sum).....	\$11,466		\$12,977	\$14,700
Net weight of each valve in lbs.....	44,089		50,000	56,650
Item 3				
7 upper plain control balanced valves (lump sum).....	\$23,534		\$26,900	\$28,550
Net weight of each valve in lbs.....	46,682		50,600	46,950
Item 4				
4 upper positive control balanced valves (lump sum).....	\$11,757		\$13,153	\$14,150
Net weight of each valve in lbs.....	47,797		51,600	18,200
Item 5				
2 valves (lump sum).....	\$8,550	\$6,800	\$7,500	\$9,050
Weight of each valve in lbs.....	42,725	41,635	48,450	48,950
Items 1, 2, 3 and 4 (lump sum).....	\$64,317	\$71,016	\$76,825	\$82,600

★Items marked thus give the names of parties awarded contracts.

furnishing and delivering Poiree trestles and recess and engine pit covers for Dams 19 and 28, Ohio River, advertised in Engineering Record.

Dredging—Charleston, S. C.—Totals of bids opened May 13 by Maj. G. P. Howell, Corps Engrs., for dredging in Waccamaw River, N. C. and S. C.: The Hillsboro Dredging Co., Tampa, Fla., \$25,050; Globe Dredging Co., Savannah, Ga., \$14,000; and Simons-Mayrant Co., Charleston, \$24,725.

★River Work—Augusta, Ga.—Contract for river bank protection work reported awarded May 11 by Col. W. C. Langfitt, Corps Engrs., U. S. A., Savannah, to A. J. Twiggs & Son, Augusta, \$111,662.

Jetty—New Orleans, La.—Bids desired by Maj. Edw. H. Schulz, Corps Engrs., U. S. A., until June 20 for furnishing and placing on jetties at Southwest Pass, Mississippi River, 25,000 tons stone, advertised in Engineering Record.

Canal—Abbeville, La.—It is reported that the 5th Ward Drainage Dist. desires bids to dig about 20 miles of canal in western part of parish, to reclaim fertile land known as Foreman plat.

Drainage Canals—Cleveland, Miss.—Bids desired until June 5 by Bd. Drainage Comrs., Cleveland, for drainage canals in Deason Drainage Dist., main line 9.5 miles, 24,630 cu. yds. laterals "A," "B" and "C," 1.2, 9 and 1 mile in length respectively, and 16,000, 40,000, and 23,000 cu. yds. excav. respectively. W. W. Boone, Engr., Cleveland.

Retaining Wall—Indianapolis, Ind.—Plans being prepared for concrete retaining wall along south bank of Fall Creek, from College Ave. to 30th St. Cost, \$35,000, to be shared by City Council, Park Board and property owners along stream.

★Vincennes, Ind.—David McClary, P. O. Box 374, Clk. Drainage Dist., writes contract for levee work including concrete abutments and flood gates in Russell and Alliance Drainage Districts, awarded to Fred McCrane & Co., Omaha, Neb., as follows: 228,400 cu. yds. levee, 11 cts.; 260,000 yds. repairs to old levee, 18.7 cts.; concrete abutments and flood gates, \$5,500; 50 yds. concrete cove in old levee, \$7.50; total, \$79,619.

Flood Prevention—Indianapolis, Ind.—Governor Ralston, of Indiana, has provided \$10,000 to meet expense of preliminary report of Indiana Comm. on Floods and Flood Prevention, and Executive Com. of Comm. has appointed Prof. W. K. Hatt, Purdue University, Lafayette, as engineer to commission.

Drainage and Levee Work—Quincy, Ill.—Bids desired until June 3 by W. P. Martindale, Secy. South Quincy Drainage & Levee Dist., Quincy, for constructing levees involving placing about 600,000 cu. yds. earth, excavate and fill about 18,000 cu. yds. muck ditch, place about 300 cu. yds. stone as rip rap and clear about 122 acres right of way; construct canals and open ditches involving about 325,000 cu. yds. excav.; furnish haul, lay and backfill about 115,000 ft. drain tie 6 to 24 in. Edmund T. Perkins, Eng. Co., Engrs., 1110 First Natl. Bank Bldg., Chicago.

Levee—Jerseyville, Ill.—Bids will be opened May 25 by County Clerk for constructing Nutwood Drainage and Levee Dist., comprising 51,060 ft. levee repairs and reconstruction, estimated at about 41,083 cu. yds. fill, including 13,000 ft. where no fill is required; 1530 ft. 14-in. vitr. salt-glazed drain tie, including concrete head wall and concrete outlet wall; paving suction bay and constructing walls at pumping plant.

★Drain—Council Bluffs, Ia.—Contract awarded May 7 by County Comrs., for drainage ditch in Noble Lake Drainage Dist., 65,300 cu. yds. excav., to W. A. Smith, California Junction, Ia.

Irrigation—Barstow, Tex.—J. H. Miller, Clk. Ward County Irrig. Dist. No. 1, writes bids will soon be received for constructing irrigation system, to cost \$475,000. Engineer, A. H. Dunlap, Barstow.

Drain Tile—Van Vleck, Tex.—Prices desired by E. L. Scott, care of Elscott Farms, Van Vleck, on drain tile either hard burned or vitrified, advertised in Engineering Record.

(Cont. Sect. 2 of Route No. 20, part of Bway-4th Ave. Rapid Transit R.R.)										
10	50 cu. yds. hollow t. c. brick or tile masonry	20.00	18.00	15.00	15.00	4E	50 front ft. maintain., protect. and secur. bldgs.	40.00	50.00	100.00
11	1,000 bbls. grout of Portland cement	2.70	3.00	3.50	3.50	6	2,000 cu. yds. concrete masonry	18.00	15.00	20.00
11A	1,175 sq. yds. resurfacing concrete masonry	1.20	1.00	1.50	2.00	7	580 cu. yds. protective concrete masonry, outside water pressure	10.00	15.00	20.00
12	1,000 lin. ft. timber piles	2.00	1.00	.50	1.00	8	20 cu. yds. rubble stone masonry	10.00	9.00	20.00
13	50 M. ft. timber foundation	50.00	100.00	60.00	100.00	8A	20 cu. yds. dry rubble masonry	5.00	7.00	20.00
14	100 cu. yds. broken stone or gravel	3.00	2.00	2.50	2.50	9	20 cu. yds. brick masonry	15.00	20.00	30.00
15	23,700 sq. yds. (a) waterproofing, 1-ply	.35	.40	.50	.50	9C	61 cu. yds. removal of hollow tile masonry	6.00	8.00	30.00
	100 sq. yds. (b) waterproofing, 2-ply	.70	.70	.75	.75	9D	1,600 cu. yds. removal of concrete masonry	25.00	25.00	50.00
	4,400 sq. yds. (c) waterproofing, 3-ply	1.05	.90	1.00	1.25	10	50 cu. yds. hollow t. c. brick masonry	15.00	20.00	30.00
	100 sq. yds. (d) waterproofing, 4-ply	1.50	1.10	1.25	1.50	11	10 bbls. grout of Portland cement	3.00	4.00	5.00
	100 sq. yds. (e) waterproofing, 5-ply	2.00	1.30	2.00	2.00	11A	620 sq. yds. resurfacing concrete masonry	4.00	2.00	1.50
	200 sq. yds. (f) waterproofing, 6-ply	2.50	1.50	2.50	2.50	14	20 cu. yds. broken stone or gravel	2.00	3.00	5.00
	100 sq. yds. (g) waterproofing, dry ply	.35	.40	.45	.40	15	200 sq. yds. (a) waterproof, 1-ply	.50	.75	.75
16	3,740 cu. yds. brick laid in asphalt mastic	22.00	23.00	33.50	25.00		1,000 sq. yds. (b) waterproof, 2-ply	1.25	1.00	1.00
17	50 lin. ft. (a) drain pipe, 12-in., vitr.	1.20	3.00	.75	1.00		3,650 sq. yds. (c) waterproof, 3-ply	1.50	1.50	1.50
	50 lin. ft. (b) drain pipe, 10-in., vitr.	1.00	1.75	.55	.80		100 sq. yds. (d) waterproof, 4-ply	1.75	2.00	2.00
	50 lin. ft. (c) drain pipe, 8-in., vitr.	.80	1.00	.45	.60		100 sq. yds. (e) waterproof, 5-ply	2.00	2.50	2.50
	50 lin. ft. (d) drain pipe, 6-in., vitr.	.60	.80	.35	.40		100 sq. yds. (f) waterproof, 6-ply	2.25	3.00	3.50
	50 lin. ft. (e) drain pipe, 4-in., vitr.	.40	.70	.30	.20		100 sq. yds. (g) waterproof, dry ply	.30	.60	.60
	50 lin. ft. (f) drain pipe, 6-in., c-i	1.50	1.50	1.00	1.50	17	100 lin. ft. (a) vitr. drain pipe, 12-in.	1.00	1.10	2.00
	50 lin. ft. (g) drain pipe, 4-in., c-i	1.00	1.25	.75	1.00		50 lin. ft. (b) vitr. drain pipe, 10-in.	.90	.90	1.80
17A	150 lin. ft. (h) drain pipe, 10-in., c-i	2.00	3.00	2.00	2.00		50 lin. ft. (c) vitr. drain pipe, 8-in.	.80	.70	1.40
	50 lin. ft. (a) c-i. pipe and fittings, 3-in.	1.00	1.50	.65	1.00		50 lin. ft. (d) vitr. drain pipe, 6-in.	.75	.60	1.40
	50 lin. ft. (b) c-i. pipe and fittings, 6-in.	1.50	2.00	1.25	1.50		50 lin. ft. (e) vitr. drain pipe, 4-in.	.70	.50	1.40
	50 lin. ft. (c) c-i. pipe and fittings, 8-in.	2.00	3.00	1.75	2.00		50 lin. ft. (f) c-i. drain pipe, 6-in.	1.00	1.70	2.40
18	77,625 duct ft. tunnel duct	.15	.12	.12	.10		50 lin. ft. (g) c-i. drain pipe, 4-in.	.90	1.10	2.40
19	3,185 tons riveted steel	70.00	70.00	76.50	75.00	17A	50 lin. ft. (a) c-i. pipe and fittings, 3-in., extra heavy	1.25	1.00	2.50
20	930 tons steel beams and shapes	60.00	65.00	76.50	65.00		50 lin. ft. (b) c-i. pipe and fittings, 4-in., extra heavy	1.50	1.50	3.00
21	90 tons steel rods and bars	80.00	70.00	60.00	60.00		50 lin. ft. (c) c-i. pipe and fittings, 6-in., extra heavy	1.75	2.00	3.50
25	5 tons miscell. iron castings	100.00	110.00	65.00	80.00		50 lin. ft. (d) c-i. pipe and fittings, 8-in., extra heavy	2.25	2.50	4.00
25C	2 tons miscell. iron furnishing for sewers	100.00	110.00	70.00	80.00	18	23,800 duct ft. tunnel ducts	.25	.25	.40
26	1,000 lbs. wire mesh	.10	.10	.20	.12	18B	150 cu. yds. removal of vitr. tunnel ducts	10.00	8.00	35.00
27	1,410 lin. ft. 1½-in. galv. iron pipe handrail	.40	.50	.60	.25	19	400 tons riveted steel	125.00	100.00	125.00
28	2,160 sq. ft. steel gratings for ventilation	1.50	1.50	1.50	1.50	19B	50 tons cut, drill, repaint, etc., old steel	80.00	100.00	100.00
29	100 sq. ft. vault lights	1.50	1.50	1.50	1.50	19C	255 tons removal of steel	45.00	80.00	100.00
30	1,275 sq. yds. (a) street surface restored within curb lines	2.70	3.00	2.50	2.00	20	60 tons steel beams and shapes	90.00	100.00	110.00
	100 sq. yds. (e) street surface restored betw. curbs with asphalt	5.00	3.50	3.00	2.50	21	5 tons steel rods and bars	80.00	75.00	100.00
	8,400 sq. yds. (f) street surface restored betw. curbs with granite	2.25	2.50	2.75	3.50	25	1 ton miscell. iron castings	75.00	75.00	150.00
32	475 lin. ft. (i) new bluestone curb	2.00	2.00	1.50	1.25	25C	5 tons miscell. sewer irons	80.00	75.00	100.00
	100 lin. ft. (k) new 8-in. granite curb	2.50	3.50	2.00	1.50	26	100 lbs. special wire forms	.30	.15	.20
	4,000 lin. ft. (a) w-i. electric conduits, ¾-in.	.20	.25	.20	.40	30	940 sq. yds. (a) sidewalks restored	3.50	3.00	3.50
	300 lin. ft. (b) w-i. electric conduits, 1½-in.	.35	.40	.30	.50		2,420 sq. yds. (c) repavt. of roadway-asphalt	1.50	3.00	4.00
	100 lin. ft. (c) w-i. electric conduits, 2-in.	.50	.50	.40	.60	37	10 lin. ft. (d) new bluestone curb	4.00	5.00	5.00
	300 lin. ft. (d) w-i. electric conduits, 1-in.	.25	.30	.25	.45	38	50 lin. ft. vitr. pipe sewer, 12-in.	6.00	6.00	6.00
33	365 c-i. outlet boxes, ea.	1.50	1.50	1.00	1.00	40	50 lin. ft. vitr. pipe sewer, 20-in.	6.00	7.00	7.00
33A	6 c-i. pull boxes, ea.	1.50	2.50	2.00	5.00	41	50 lin. ft. vitr. pipe sewer, 24-in.	6.00	8.00	6.00
34	65 lin. ft. (a) c-i. pipe and fittings, 6-in.	1.50	2.00	1.25	1.50	42	1 ton c-i. sewer pipe, straight	35.00	50.00	100.00
	50 lin. ft. (b) c-i. pipe and fittings, 3-in.	.80	1.50	.75	1.00	43	1 ton c-i. sewer pipe, special	75.00	80.00	150.00
37	130 lin. ft. 12-in. vitr. sewer	3.00	3.00	2.50	4.00	75	900 lin. ft. (a) maintain. electric underground railroad, single track	30.00	20.00	30.00
38	600 lin. ft. 15-in. vitr. sewer	4.00	3.50	2.75	4.50	75C	Install. crossover near 43d St. (lump sum)	5,000.00	7,500.00	5,000.00
40	100 lin. ft. 20-in. vitr. sewer	5.00	4.00	3.50	5.00	75D	Maintenance of existing rapid transit railroad (lump sum)	33,000.00	105,000.00	228,000.00
41	350 lin. ft. 24-in. vitr. sewer	6.00	6.00	4.50	6.00	79	650 lin. ft. water pipe, 6-in.	1.00	2.00	1.00
42	3 tons c-i. pipe, straight (sewer)	50.00	80.00	50.00	60.00	82	100 lin. ft. water pipe, 12-in.	2.50	3.00	3.00
43	2 tons c-i. pipe, special (sewer)	100.00	110.00	80.00	100.00	84	200 lin. ft. water pipe, 20-in.	5.00	4.00	6.00
45	200 lin. ft. 3 ft. 6 in. x 2 ft. 4 in. egg-shaped sewer	10.00	9.00	7.50	10.00	91	100 lin. ft. gas pipe, 6-in.	1.00	1.75	2.00
47	50 lin. ft. 4 ft. x 2 ft. 8 in. egg-shaped sewer	15.00	11.00	10.00	11.00	92	1,200 lin. ft. gas pipe, 8-in.	1.50	2.25	2.50
75	2,900 lin. ft. (a) support, and rebuild, electric street railroad, single track	4.00	20.00	5.00	15.00	93	500 lin. ft. gas pipe, 10-in.	2.00	2.75	3.00
	200 lin. ft. (b) support, and rebuild, horse street railroad, single track	4.00	5.00	3.00	5.00	94	150 lin. ft. gas pipe, 12-in.	2.50	3.50	4.00
76	2 (a) support, el. columns entirely on structure, each	2,000.00	1,500.00	500.00	1,000.00	96	300 lin. ft. gas pipe, 20-in.	5.00	4.50	5.00
76B	Support, subway under Lafayette St. (lump sum)					99A	600 lin. ft. (b) by-pass, pipe, 8-in., w. i.	4.00	5.00	10.00
76C	Support, subway under Centre St. (lump sum)						200 lin. ft. (d) by-pass, pipe, 12-in., w. i.	6.50	6.00	12.00
76F	Underpin, 9-0-2 subway						300 lin. ft. (f) by-pass, pipe, 20-in., w. i.	12.00	10.00	15.00
79	1,000 lin. ft. 6-in. water pipe	.60	1.50	.50	1.75	100	5 tons c-i. hub and spigot pipe, straight	35.00	50.00	80.00
82	1,000 lin. ft. 12-in. water pipe	1.20	2.00	1.00	2.50	101	5 tons c-i. hub and spigot pipe, special	65.00	80.00	150.00
84	700 lin. ft. 20-in. water pipe	2.00	5.00	2.00	4.00	102	100 lin. ft. h-p. fire system water pipe, 8-in.	2.25	3.00	3.50
85	200 lin. ft. 24-in. water pipe	2.40	6.00	3.50	5.00	103	100 lin. ft. h-p. fire system water pipe, 12-in.	4.00	4.00	4.50
87	100 lin. ft. 36-in. water pipe	3.60	8.50	5.00	6.00	104	100 lin. ft. h-p. fire system water pipe, 16-in.	6.00	5.00	8.00
88A	50 water service restored	25.00	20.00	20.00	25.00	105	100 lin. ft. h-p. fire system water pipe, 20-in.	10.00	5.00	10.00
90	900 lin. ft. 4-in. gas pipe	.40	.60	.40	1.00	106	100 lin. ft. h-p. fire system water pipe, 24-in.	12.00	6.50	11.00
91	200 lin. ft. 6-in. gas pipe	.80	1.00	.60	1.25	107	3 tons c-i. spigot and groove h-p. fire system, straight	35.00	50.00	100.00
92	600 lin. ft. 8-in. gas pipe	1.20	1.75	1.00	1.50	108	1 ton c-i. spigot and groove h-p. fire system, special	75.00	80.00	150.00
93	100 lin. ft. 10-in. gas pipe	1.00	3.00	1.25	1.50	127	4,500 duct ft. electric ducts and conduits	1.00	1.50	1.50
94	800 lin. ft. 12-in. gas pipe	1.20	4.00	1.50	2.50	127A	4,500 lin. ft. (b) electric ducts and conduits, 3-in., w. i.	.75	1.50	1.20
95	900 lin. ft. 16-in. gas pipe	1.60	5.00	1.75	3.00		4,200 lin. ft. (c) electric ducts and conduits, 3½-in., w. i.	.90	1.75	1.50
96	700 lin. ft. 20-in. gas pipe	2.00	6.00	2.00	3.50		150 lin. ft. (d) electric ducts and conduits, 4-in., w. i.	1.00	2.00	1.70
97	400 lin. ft. 24-in. gas pipe	2.40	10.00	2.75	4.00		100 lin. ft. (f) Edison conduits, 2-in.	1.25	1.00	1.70
98	200 lin. ft. 30-in. gas pipe	3.00	15.00	4.00	5.00		100 lin. ft. (g) Edison conduit, 2½-in.	1.50	1.25	2.20
99A	3,600 lin. ft. (b) w-i. by-pass, gas pipe, 8-in.	5.00	5.00	4.00	4.50					
	300 lin. ft. (d) w-i. by-pass, gas pipe, 12-in.	7.00	7.00	5.00	5.00					
	100 lin. ft. (e) w-i. by-pass, gas pipe, 16-in.	7.50	9.00	7.50	6.00					
99B	1,400 lin. ft. (a) by-pass, pipe on trestle, 12-in.	7.00	8.50	7.00	6.00					
	2,200 lin. ft. (b) by-pass, pipe on trestle, 16-in.	7.50	10.00	8.00	7.00					
	2,100 lin. ft. (c) trestle for by-pass, pipe	25.00	20.00	25.00	25.00					
99D	50 gas service restored	3.00	10.00	4.00	2.00					
100	35 tons new c-i. hub and spigot pipe, straight	50.00	80.00	40.00	50.00					
101	20 tons new c-i. hub and spigot pipe, special	100.00	110.00	75.00	70.00					
102	400 lin. ft. 8-in. high-pressure water pipe	2.00	3.50	2.00	2.00					
103	800 lin. ft. 12-in. high-pressure water pipe	3.00	5.00	2.50	3.00					
104	800 lin. ft. 16-in. high-pressure water pipe	4.00	8.00	4.00	4.00					
105	200 lin. ft. 20-in. high-pressure water pipe	10.00	12.00	5.00	5.00					
106	100 lin. ft. 24-in. high-pressure water pipe	15.00	15.00	7.50	6.00					
107	30 tons new c-i. spigot and groove pipe, straight	60.00	80.00	40.00	50.00					
108	15 tons new c-i. spigot and groove pipe, special	120.00	110.00	75.00	70.00					
125	200 lin. ft. 8-in. mail tube	2.00	5.00	4.00	7.00					
126C	70 lin. ft. (a) new 8-in. mail tube, straight	3.00	10.00	3.00	5.00					
	40 lin. ft. (b) new 8-in. mail tube, curved	5.00	15.00	5.00	8.00					
127	500 duct ft. electric ducts and conduit	1.00	.60	.25	.50					
127A	1,000 lin. ft. (a) w-i. pipe ducts, 2½-in. pipe	1.00	.50	.35	1.25					
	10,000 lin. ft. (b) w-i. pipe ducts, 3-in. pipe	.25	.70	.50	1.25					
	1,000 lin. ft. (c) w-i. pipe ducts, 3½-in. pipe	1.00	.90	.60	1.25					
	200 lin. ft. (d) w-i. pipe ducts, 4-in. pipe	1.50	1.20	.75	1.25					
	700 lin. ft. (e) w-i. pipe ducts, 2-in. Edison conduit	1.00	.80	.30	1.25					
	800 lin. ft. (g) w-i. pipe ducts, 2½-in. Edison conduit	1.00	1.20	.35	1.25					
127C	25 electric service restored, ea.	25.00	15.00	25.00	25.00					

★New York, N. Y.—Following are bids as opened by Public Service Comm. May 13 for constructing Sect. 6-A, Routes 4 and 38, of 7th Ave.-Lexington Ave. Rapid Transit R.R., a 4-track underground railroad extending from about 100 ft. south of 43d St., Manhattan, to connection with existing subway—(a) Holbrook, Cabot & Rollins Corp., 331 Madison Ave., \$421,556 (awarded contract); (b) Rapid Transit Subway Constr. Co., 165 Bway., \$468,038; (c) Smith, Hauser & McIsaac, 18 E. 41st St., \$761,852;

PUBLIC BUILDINGS AND SCHOOLS.

Items Arranged Geographically

Boston, Mass.—Following are bids received May 13 for erecting 2 wings at the State House: Wm. Crane, Cambridge, \$50,495; Geo. A. Fuller Co., \$762,882; Lighton Mitchell Co., \$764,949; Whiton & Hayes Co., \$768,000; Norcross Bros., \$9,875; A. Varnerin Co., \$774,796; Woodbury & Leighton Co., \$777,500; Connors Bros. Co., \$779,295; Chas. Logue Bldg. Co., \$80,000; Geo. Baker Land Co., \$785,000; Wm. Keyes & Co., \$795,129; Wells Bros., \$797,000. Trust of City Hospital will soon ask bids for improvements, to include a story ward building, \$196,000; changes in laundry building, \$14,000; alterations to line building, \$35,000; yard wall, \$8,000; sanitary arrangement in existing buildings, \$13,000; and fireproofing administration building, and other necessary improvements.

Chelsea, Mass.—Bids desired until June 4 at Bureau Yards and Docks, Navy Dept. Washington, D. C., for furnishing, installing, complete heating and pumping plant (except building and boiler) with piping connections and distributing systems at U. S. Naval Hospital. Specification No. 2075.

North Andover, Mass.—Contract for building Merrimack Grammar School awarded to Louis H. McAloon, at \$21,321.

Worcester, Mass.—City Council and Bd. of Aldermen have passed in concurrence appropriation of \$226,000 for school house construction. G. C. Halcott, Supt. Bldgs.

Pawtucket, R. I.—School Com. accepted tentative plans for a school, 3-story, brick, rooms and assembly hall.

Providence, R. I.—Bids soon to be asked by State Bd. of Control for erecting a 3-story brick ward building at the State Hospital for Insane. Martin & Hall, Architects, Providence.

Contracts have been awarded as follows for 29-room Courtland School: General contract to Wm. Williams, of Providence, at \$235,400; heating to General Fire Insulating Co., \$23,000; plumbing to Dennis McCarthy, at \$14,997.

Standard Electric Co. submitted the best bid for the electric work in the above building, at \$7,110.

Bridgeport, Conn.—Following are the best bids received May 11 by Bd. of Educ. for 4-room addition to Oak St. School: Mason work, Jos. d'Agostino & Co., \$17,548; carpentry, S. W. Hubbell Bldg. Co., \$6,662; plumbing, W. P. Kirk & Co., \$2,708.

Hartford, Conn.—Contracts for erecting the addition to the Wethersfield Ave. School awarded by South School Dist. as follows: Probable cost \$200,000; mason brick work, Ahern & Welch, carpenter work, Adam Purves; iron work, Ber-Constr. Co.; heating and ventilating, Abby & Blinn.

New York, N. Y.—Bd. of Estimates has decided to purchase a site in Seton Falls Park, Bronx Boro. for city hospital for contagious diseases.

Long Island City, L. I., N. Y.—Bids desired until June 1 by Superintendent of School Bldgs., New York City, for improving sanitary conditions of Schools 2, 51, 66, 75, Jamaica High School and New York Parental School; also constructing ice-making room and installing refrigerating apparatus in New York Parental School.

New Rochelle, N. Y.—Lowest bid received May 16 by Superv. Archt., Washington, D. C., for constructing U. S. post office was from Geo. T. Kelly, Yonkers, \$59,946, for limestone, and \$60,137 for sandstone.

Wards Island, N. Y.—Bids desired until June 1 by State Hospital Com., Albany, for steam service connections, water, sewer and storm water piping for Nurses' Home, Manhattan State Hospital, Wards Island. Lewis F. Pilcher, State Archt., Albany.

Mineola, L. I., N. Y.—Contract for addition to the county building awarded to the following bidders all of New York City: General contract, to Libman Constr. Co., \$10 W. 46th St., at \$132,880; heating and ventilating, Jas. H. Merritt, 48 Cliff St., \$5,880; plumbing, Wells & Newton Co., 2 Ave. B., \$10,855; electric work, to Commercial Constr. Co., 8 Bridge St., \$823.

Buffalo, N. Y.—Bids reported desired by Olson & Hudson, Archts., Dun Bldg., for erecting 2-story steel, brick and stone, 1 x 93 ft., school and auditorium for Temple Beth Zion, Delaware Ave. and Franklin St. Cost \$60,000.

Deposit, N. Y.—Bids desired until May 27 by Bd. Educ., for erecting school, including plumbing, electric wiring, ventilating and heating. J. H. Philips, Archt., Deposit.

Gouverneur, N. Y.—Contract awarded May 11 by Trus. Union Free School Dist. for erecting marble and brick school from plans of Wm. Townner, 320 5th Ave., New York, to Edw. K. Fenno, Syracuse, at \$4,447.

North Tonawanda, N. Y.—Contract for erecting Col. Payne School awarded to Geo. W. Morris, of Buffalo, at \$46,735; plumbing to W. W. Walkinshaw, North Tonawanda, \$2,765; heating and ventilating, American Warming & Ventilating Co., Elmira, \$500.

Farmingdale, N. Y.—Bids desired by Dr. Franklin W. Hooper, Secy. Bd. Trus., State School for Agriculture, 30 Lafayette Ave., Brooklyn, until June 13, for construction, etc., for Horticulture and Agronomy Bldgs., and Directors' Cottage at New York State School, advertised in Engineering Record.

Manchester, N. Y.—Contract for erecting school at Shortsville awarded to R. R. Schnirel, Geneva, at \$24,600.

Bids desired on heating, plumbing and electric wiring for above building.

Rochester, N. Y.—Contracts awarded May 4 by Bd. Educ. for erecting Hendrik Hudson School 28 on Humboldt St. as follows: To A. Frederick & Sons Co., mason work, \$23,056; to Homer Knapp, carpenter work, \$34,485; to Wright & Alexander Co., ventilating and heating, \$12,409; and also plumbing, \$4,176, and for electrical work, to Fish & Barton, \$2,433.

Contracts awarded May 15 by Bd. Educ. for erecting Nathaniel Hawthorne School 25 on N. Goodman St. as follows: Plumbing, R. T. Ford Co., \$3,999; heating and ventilating, Edw. Towse, \$23,567; carpenter work, A. W. Hopeman & Sons Co., \$32,222; mason work, P. G. Hauck, \$22,106; electric work, Rochester Electric Contr. Co., \$2,350.

Newark, N. J.—Bids desired until June 4 by Pres. Bd. Trus. N. Y. State Custodial Asylum for Feeble Minded Women for construction, also separately on heating, plumbing and electric work of a cottage for 92 inmates at said asylum. Lewis F. Pilcher, State Archt., Albany.

Trenton, N. J.—Bids desired until June 5 by State Bd. Educ., Trenton, for certain repairs to New Jersey State Normal School, Trenton.

Bids desired until May 27 by City Comm. for erecting a nurses' home at the Municipal Hospital in Township of Hamilton. Klemann & Fowler, Archts., First Natl. Bank Bldg.

Millburn, N. J.—Citizens May 12 voted \$39,000 bonds for improvements to Short Hills School and erecting a 4-room addition. Architects, Guilbert & Battelle, Newark.

Paterson, N. J.—Special committee appointed to report on improvements to schools recommends a 14-room addition and an assembly hall to School No. 21, and the remodeling of School No. 10.

Jersey City, N. J.—\$100,000 county asylum bonds and \$300,000 county park bonds have been sold.

Pittston, Pa.—Plans have been prepared for a 42-room high school to take the place of the damaged high school; cost \$200,000.

Spring City, Pa.—Contract for erecting two 3-story brick and fireproof dormitories at the Eastern Pennsylvania State Inst. for Feeble Minded has been awarded to J. P. Breneman, Lancaster. Philip H. Johnson, Archt., Philadelphia.

Plains, Pa.—Contracts for erecting Hudson School on Cotter Ave. awarded as follows: General contract, to Edw. J. Corcoran; heating and ventilating, to Gaylord Eng. & Constr. Co.; plumbing, to Jos. H. Shovlin; electrical work, to R. D. Crothermel.

Irwin, Pa.—A high school costing \$125,000 is to be erected by Irwin and North Huntingdon Townships.

East Greenville, Pa.—Bids desired by E. E. Erb, Secy. Bd. Educ., May 28, for erecting a school, heating and ventilating equipment; cost, \$19,000. Hauer & Mourere, Archts., 3110 Columbia Ave., Philadelphia.

Manheim, Pa.—Contract for erecting 2-story brick school awarded to B. S. Warfel, Lancaster, for general construction at \$37,858; plumbing to Musselman & Schwarz, Lancaster, \$1,950; heating, John K. Nesbit, Philadelphia, \$5,300; electrical work, Dauphin Electric Co., Harrisburg, \$998.

Hazleton, Pa.—Contract for erecting 3 buildings at the Boys' Industrial Home at Kis-Lyn awarded by Co. Comrs., Wilkes-Barre, to H. L. Campbell, Hazleton, at \$27,247. Three next lowest bidders: Schmidt & Co., Wilkes-Barre, \$28,615; Shepperd Constr. Co., Wilkes-Barre, \$28,780; John Curtis & Co., Wilkes-Barre, \$29,077.

Easton, Md.—Contract awarded May 12 for erecting annex to high school to U. G. Ross & Bros., Easton, at \$17,500.

Baltimore, Md.—See "Water."

Richmond, Va.—Contracts awarded May 8 by School Bd., for erecting school on Floyd Ave., from plans of Chas. M. Robinson, to A. M. Walkup, American Bank Bldg.; heating and ventilating to American Htg. & Vent. Co.

Petersburg, Va.—Contract for erecting school on Halifax St. awarded to M. P. Andrews Co., of Petersburg. Cost \$20,000.

Wheeling, W. Va.—Bids reported desired for reconstructing the high school according to plans by Fred F. Faris, of Wheeling.

Moundsville, W. Va.—W. H. Batson, Moundsville, submitted the lowest bid May 14 for erecting U. S. post office, at \$57,500 for limestone, and \$59,500 for sandstone.

Institute, W. Va.—Bids desired until June 5 by State Bd. Control, Charleston, for erecting at West Virginia Colored Institute a 2-story and basement dormitory and dining hall building of brick and reinforced concrete.

Wilmington, N. C.—Bd. of Educ. is considering erecting new high school on Main and 13th Sts. Plans for school to replace Hemenway School prepared by E. H. Stephens, of Wilmington, accepted by Bd.; cost \$35,000.

Ridgeland, S. C.—Architect selected to prepare plans for court house and jail for which the citizens recently voted in favor of issuing \$40,000 bonds. Bids for said bonds are to be opened June 8 by Co. Comrs.

Camden, S. C.—Contract for U. S. Post Office awarded to Algernon Blair, Montgomery, Ala., at \$34,924.

Ocala, Fla.—Bids desired until June 5 by County Bd. of Pub. Instruction, Ocala, for an addition to Ocala Primary School.

Tampa, Fla.—Contract for erecting city hall awarded to McGucken & Hyer, Tampa, at \$183,900.

Plans of Fred J. James, of Tampa, for public brick fireproof library have been accepted by Bd. Pub. Wks.; cost \$50,000.

Avon Park, Fla.—Site selected for \$20,000 high school.

Key West, Fla.—Plans prepared by T. M. Bryan, Key West, for school to replace Russell Hall at Division and White Sts. accepted by Bd. Pub. Instruction. Building to be 2 stories, contain 20 rooms and cost \$35,000.

Daytona, Fla.—Citizens voted in favor of \$50,000 bond issue for school improvements.

Mobile, Ala.—Bids desired until June 2 by Superintendent Educ. for erecting 3 new schools, Russell Semmes and Old Shell Rd., and remodeling Barton Academy. Stevens & Nelson Co., Archts., Liverpool & London & Globe Bldg., New Orleans, La.

Monroe, La.—Contract awarded to Caldwell Bros., Abbeville, at \$49,570, for erecting 2 buildings at the old Reformatory at Monroe to replace buildings destroyed by fire.

LaFayette, La.—Lowest bid received May 18 for erecting U. S. Post Office was from J. E. Jenkins & Co., Ocala, Fla., at \$43,500 for limestone and \$45,000 for sandstone.

Meadville, Miss.—Contract for erecting the court house reported awarded to Little Clecker Constr. Co., Anniston, Ala., at about \$35,000.

Walshall, Miss.—Architect selected to prepare plans for the court house; cost \$45,000.

Jackson, Tenn.—All bids received for addition to high school rejected, as they exceeded the \$30,000 appropriation. New plans to be prepared and new bids asked.

Rockwood, Tenn.—Plans to be prepared by H. L. Huntington of Chattanooga for grammar school; cost \$50,000.

Louisville, Ky.—Bids desired until June 5 by Business Dir., Bd. Educ., for erecting high school for boys on Brook St. Cost \$250,000. J. Earl Henry, Archt., Bd. Educ.

London, Ky.—A chapel costing \$25,000 is to be erected at the Sue Bennett Memorial School.

Oliver Hill, Ky.—Bids reported desired until May 30 by Weber, Werner & Adkins Archt., Mercantile Library Bldg., Cincinnati, O., for erecting 3-story and basement school at Oliver Hill, Ky., for Women's Home Missionary Society, care Mrs. J. B. Jennings, 237 Lawrence St., Cincinnati, O.

Oxford, O.—Following are bids received by Bldg. Com. Miami Univ. for erecting Normal College: Sims & Benzing, Hamilton, \$81,254; Louderback Contr. Co., Springfield, \$80,387; Roche & Bounner, Cincinnati, \$85,162; and Cullen & Vaughn Co., Hamilton, \$80,185. Lowest bid received at same time for chemistry building was from Sims & Benzing, at \$16,169. Frank L. Packard, Archt., Columbus.

Canton, O.—Plans being prepared for 2 schools, each to cost \$55,000, by C. C. & A. L. Thayer, New Castle, Pa., for one school, and by Geo. F. Hammond, Cleveland, for the other. W. C. Lane, Clk. Bd. Educ.

Springfield, O.—Bids reported desired for the memorial building according to plans by Frank L. Packard, of Columbus; cost \$250,000. Address Memorial Building Com.

Cleveland, O.—Contract for erecting the West Side Market sheds has been awarded to R. A. Curry Co., at \$37,949. Bids desired until June 15 by Lieut.-Col. Chas. S. Bromwell, Corps Engrs., U. S. A., for erecting a storehouse at foot of E. 9th St.

Bids reported desired until June 12 by Dir. Pub. Service for completion of Woodland Ave. Municipal bathhouse; cost reported at about \$40,000.

Elyria, O.—Contract for high school awarded to L. A. Burgett & Co., Lorain, at about \$98,000.

Rossford, O.—Bids desired until May 27 by Clerk Bd. Educ., Rossford Special School Dist., for erecting 6-room addition to present school. F. E. Walker, Archt., 211 Main St.

St. Clairsville, O.—Bids desired until June 4 by Clerk Bd. Educ. for erecting high grade school. E. F. Faris, Archt., Schmullbach Bldg., Wheeling, W. Va.

Norwood, O.—Bids desired until June 8 by Clerk Bd. Educ. for \$95,000 bonds to complete Marion St. School.

Brecksville, O.—Bids reported desired until June 8 by Clerk Bd. Educ., for erecting 2-story and basement, 164x65 ft. school. A. E. Steel, Archt., Avenue Bldg., Cleveland. Cost, \$25,000.

Muncie, Ind.—Bids reported desired until June 18 by County Comrs., for erecting certain buildings and remodeling old buildings at County Infirmary.

Millersburg, Ind.—Bids reported desired until May 29 for erecting 2-story and basement high and grade school for Clinton Township (Amzie Wortinger, Trus., R. F. D., Goshen). Cost, \$20,000. Ellwood & Ellwood, Archts., S. Main St., Elkhart.

Ellwood, Ind.—Bids reported desired until June 2 by Bd. Educ. for erecting 2-story and basement high school. Cost, \$60,000. H. L. Bass & Co., Archts., Hume-Mansur Bldg., Indianapolis.

Warsaw, Ind.—Gass & Son submitted lowest bid on general construction of the consolidated school for Wayne Township at \$21,995.

Indianapolis, Ind.—Bids desired until June 2 by Bd. Indiana State School for Deaf, 42d St., for furnishing and installing 80-hp return tubular boiler, open feed water heater and hot water softening apparatus.

Kokomo, Ind.—Contract awarded May 14 for erecting brick high school from plans of Elmer E. Dunlap, Indianapolis, to Moore & Danner, Kokomo, at \$139,684. C. V. Haworth, Supt. of Schools.

Greenfield, Ind.—Bids desired until June 8 by Clarence Luse, Trus. Buck Creek School Township, Hancock County, \$34,470 bonds.

Muskegon, Mich.—Contract for erecting Vanderlaan School awarded to Burke, Smith & Nelson Co., of Muskegon, at \$50,067. John McNabb & Son Co., Grand Rapids; bid \$50,495.

Port Huron, Mich.—Bd. of Superv. has accepted plans for the county poor home to replace one burned at Goodells; cost \$50,000.

Greenville, Ill.—Bd. of Educ. is in favor of a new school; cost \$30,000.

Springfield, Ill.—Bids desired until June 15 by State Bd. of Administration, Springfield, for erecting buildings, plumbing, heating and sewers for same as follows: Jas. B. Dibeklia, Archt., 29 S. La Salle St., Chicago.

Elgin—Elgin State Hospital, psychopathic building for men.

Watertown—Watertown State Hospital, sanitary dairy barn.

St. Charles—St. Charles School for Boys, 6 cottages, 3 barns and addition to school.

Chippewa Falls, Wis.—Bids desired until June 3 by State Bd. Control, Madison, for erecting school, Wisconsin Home for Feeble Minded. Brust & Philip, Archts., Milwaukee.

Menomonee, Wis.—Contract awarded May 14 for erecting brick hospital to S. A. Olson. Menomonee, at \$15,745. F. W. Rowe, City Clk.

Oshkosh, Wis.—Contracts for school in 11th Ward awarded as follows: General construction to C. R. Meyer & Sons Co., \$31,937; heating, W. L. Dukerschein Htg. & Ventilating Co., \$6,300; plumbing, Mueller Bros., \$4,850.

Rowan, Ia.—Bids reported desired until June 6 by Consolidated Independent School Dist., for erecting school, including heating, plumbing, ventilating, fan equipment. Jas. F. Cox, Archt.

Toledo, Ia.—Contracts for erecting public school awarded as follows: General construction, to C. W. Ennis, Toledo, \$56,000; heating and plumbing, Nevada Htg. & Plumbing Co., Nevada, \$14,220; electric wiring, Davis & Evans, Toledo, \$1,049.

Sioux City, Ia.—Bids reported desired until June 1 by Secretary Bd. Educ., for additions to Everett and Joy schools.

LeMars, Ia.—Bids desired until May 27 by Bd. Educ., for steam heating and ventilating plant in school.

Keystone, Ia.—Plans prepared by Wm. Pedicord, of Waterloo, have been selected for the new school; cost \$20,000.

Northwood, Ia.—Contract awarded May 8 by Trus. Independent School Dist., for erecting a school from plans of Alvan & Lockhart, Chamber of Commerce Bldg., St. Paul, Minn., to Western Constr. Co., Iowa City.

St. Peter, Minn.—Contract awarded May 7 for improvements to State Hospital to Stenchen Nelson Contr. Co., St. Paul, at \$16,875.

Granite Falls, Minn.—See "Miscellaneous."

St. Paul, Minn.—An appropriation of \$60,000 for new lecture hall for Concordia College, St. Anthony and Syndicate Aves., recommended by Com. on Appropriations.

Brainerd, Minn.—Plans submitted to Council by C. Howard Parsons, Minneapolis, for the city hall.

St. Cloud, Minn.—Steps reported being taken by the City School Com. for rebuilding Melrose School recently destroyed by fire. Cost, \$60,000.

Ely, Minn.—Bids desired until June 1 by Independent School Dist. 12, for erecting 24-room fireproof building. Bids to include main building, boiler house, stack and 2 subways, complete; plumbing; ventilating and heating; electric installation for both lighting and power; vacuum cleaning system. C. Howard Parsons, Archt., Phoenix Bldg., Minneapolis.

Hutchinson, Minn.—Bids desired until June 10 by City Clerk, for erecting 2-story brick city hall and fire station; also heating, plumbing and electric wiring. C. E. Bell, Archt., Security Bldg., Minneapolis.

Sherburn, Minn.—Bids desired until May 29 by Secretary Independent School Dist. 68 for installing Moline vacuum vapor heating and ventilating plant for school; also plumbing same.

Canton, Kan.—Bids desired June 15 by Bd. Educ. for erecting brick high school, from plans of F. B. Rixse & Co., Walters Bldg., Wichita; cost \$20,000.

Horton, Kan.—Plans being prepared by J. H. Felt & Co., Kansas City, Mo., for erecting brick high school.

Broken Bow, Neb.—Contract for jail equipment awarded to Stewart Iron Wks., Cincinnati, O., at \$3,586.

Lincoln, Neb.—Bids desired until May 26 by City Clerk for erecting public comfort station at 17th and Van Dorn Sts.

Cedar Bluffs, Neb.—High school, cost \$30,000; to be erected here; citizens recently voted in favor of an additional \$17,000 bond issue.

Helena, Mont.—Bids reported desired by School Bd. for additions to Central High School. Geo. H. Carsley, Archt.

Excelsior Springs, Mo.—Lowest bids received May 13 by Superv. Archt., Washington, D. C., for constructing U. S. Post Office was from F. H. Latimer & Son, Kansas City, at \$48,344, for limestone, and from Hiram Lloyd Bldg. & Constr. Co., St. Louis, at \$47,037, for sandstone.

St. Joseph, Mo.—Plans being prepared by Rudolph Meier Ballinger Bldg., for Noyes Hospital to be erected on 24th St. and Frederick Ave.; cost, including site, \$125,000.

St. Louis, Mo.—Bids desired until June 5 by Bd. Pub. Improv. for erecting Ward Bldgs. Nos. 1 and 2, Isolation Hospital.

Savannah, Mo.—Plans to be prepared by Eckel & Aldrich, St. Joseph, for brick fireproof county infirmary, to cost \$25,000.

Clarksville, Ark.—Citizens reported to have voted in favor of issuing \$30,000 bonds to erect a fireproof school on West Hill.

Arkansas City, Ark.—Bids desired until June 4 (not 14 as previously stated) by Supervising Archt., Washington, D. C., for construction, complete (including mechanical equipment, interior fixtures and approaches) of U. S. Post Office.

Marianna, Ark.—School bonds amounting to \$33,500 sold.

Clarksville, Ark.—School Bd. decided to erect fireproof school on West Hill. Cost, \$30,000.

Houston, Tex.—Plans accepted by School Bd. for addition to Lubbock School. Cost, \$25,000.

Canyon, Tex.—Steps reported being taken by the State Bd. of Educ. for rebuilding the West Texas Normal School recently destroyed by fire. Cost, \$250,000.

Ft. Bliss, Tex.—Bids desired until June 3 by Capt. Wm. E. Hunt, Q. M., U. S. A., El Paso, for erection, including plumbing, heating, electric wiring and fixtures, set of noncommissioned officers' quarters.

Galveston, Tex.—Bids desired until June 1 by Bd. School Trus. for erecting 2-story and basement brick school. L. S. Green, Archt., American Natl. Insurance Bldg.

Mayor has signed the following bond issues: \$200,000 for schools, \$150,000 for extension of city water works and sewers.

Sherman, Tex.—Contract for erecting Carnegie Library awarded to Jerry Wall, Sherman, at about \$20,000.

Denver, Colo.—Contract for interior finish of U. S. Post Office awarded to Norman Ker Co., New York, at \$482,500.

Portland, Ore.—Preliminary programme of plans and specifications for Couch and Shattuck Schools adopted by School Bd.

Plans being prepared by Friedlander & Seymour, New York, for erecting public auditorium. Cost reported to be \$500,000.

Alhambra, Cal.—Norman F. Marsh, Broadway Central Bldg., Los Angeles, preparing plans for high school. Contract to be awarded by County Supervisors.

Stockton, Cal.—Bids desired until June 4 by State Engineer, Sacramento, for erecting building at Stockton State Hospital.

Glendale, Cal.—Bids desired until May 29 by Glendale Union High School Dist. for furnishing and installing plumbing and telephone system for household arts and mechanics buildings. Norman F. Marsh, Archt., Bway. Central Bldg., 424 S. Bway., Los Angeles.

Calexico, Cal.—Plans prepared by Allison & Allison, Los Angeles, for high school; cost, \$65,000.

Stockton, Cal.—Plans to be prepared by Stone & Wright, San Joaquin Bldg., for \$85,000 school, brick and steel construction.

San Francisco, Cal.—Contract for marble work on the city hall awarded to Jos. Musto Keenan Co., at \$230,000. Plans of Geo. W. Kelham, Crocker Bldg., have been selected for the \$1,000,000 library.

Following are 4 lowest bids received May 11 for erecting the Massachusetts Building at the Panama Pacific Exposition: W. D. Henderson, \$52,978; Dunnavant Houghton Van Sant Co., \$53,933; Jas. L. Brown, \$54,800, and Chas. Wright, \$54,800.

Bids reported desired until May 29 by Illinois Com. to Panama-Pacific International Exposition at office of Jas. B. Dibelka, Archt., 29 S. La Salle St., Chicago, Ill., for erecting Illinois State Building at said exposition.

San Diego, Cal.—Plans completed for municipal warehouse; cost, \$75,000.

Bids reported desired until June 1 by Bd. Educ. for erecting 2-story 18-room brick school; separately on heating and plumbing. Theo. V. Kistner, 814 American Natl. Bank Bldg., Archt.

Redondo Beach, Cal.—Preliminary plans prepared by L. B. Pemberton, 807 Auditorium Bldg., for high school to be 2-story, contain 40 rooms, auditorium and open air rooms. Cost, \$150,000.

San Fernando, Cal.—Bids desired until June 1 by Bd. Educ. for erecting additions and making alterations to grammar school, including general contract, plumbing, electric wiring, heating and ventilating.

Kingman, Ariz.—Bids desired until June 12 by Bd. Superv., for erecting court house. Lescher & Kibbey, Archts., 400 Bank of Arizona, Phoenix.

Phoenix, Ariz.—Contract for concrete dining hall and kitchen at State Asylum for Insane awarded to Arizona Eng. & Constr. Co., Phoenix, at \$39,500.

Bids desired until June 8 by Commissioner Indian Affairs, Washington, D. C., for erecting girls' brick industrial building, Phoenix Indian School. For further information apply to Superintendent of School.

Dubois, Idaho.—Contract awarded May 10 by Bd. Educ. Dubois Independent School Dist. for erecting 2-story and basement grade school, from plans of John V. Visser, Overland Bldg., Boise, to A. B. Stephens, Blackfoot, at \$18,473.

Nezperce, Idaho.—Plans of Jacobs & Dysland, of Pullman, Wash., accepted for the \$50,000 court house.

Sussex, N. B.—Bids reported desired until May 26 by Deputy-Minister Dept. Militia and Defence, Ottawa, Ont., for erecting drill hall.

Montreal, Que.—A gymnasium costing \$150,000 is to be erected at McGill University.

Beauport, Que.—Bids reported desired until June 1 by Secretary Dept. Pub. Wks., Ottawa, Ont., for erecting public building.

Napanee, Ont.—Bids desired until June 5 by Secretary Dept. Pub. Wks., Ottawa, for erecting a drill hall.

Trail, B. C.—Site selected for \$60,000 post office. Address Dept. Pub. Wks., Ottawa, Ont.

PRIVATE BUILDINGS.

Items Arranged Geographically

Springfield, Mass.—Allied Stores Co. intends erecting a 6-story business building here.

A permit has been issued for a 4-story brick apartment house to be erected on State St. by Francis Woodin Realty Trust Co.; cost \$50,000. H. L. Sprague, Archt., 310 Main St.

Springfield, Mass.—Wm. Lay, of the New England Real Estate Co., intends erecting at 187 Main St. a 6-story hotel.

New Britain, Conn.—Preliminary plans completed by Davis & Brooks of Hartford, for Y. W. C. A. Building on Hungerford Court; cost \$60,000.

New York, N. Y.—Plans for 4-story fireproof Y. M. C. A. Building at 160th St. and Washington Ave. have been prepared by Louis E. Jallade, 37 Liberty St. Bids for construction will be asked soon.

Preliminary plans being prepared by Fredk. Zobel, 35 W. 39th St., for 12 to 16-

story store and loft building to be erected at 4th Ave. and 28th St.

Preliminary plans being prepared by Albert Jos. Bodker, 62 W. 45th St., for 8-story store and loft building at 874 6th Ave.

Plans filed for alterations to New Theatre, Central Pk. West and 63d St., which Century Opera Co. intends making at a cost of \$100,000. Wm. H. McElfattrick, 701 7th Ave., Archt.

Albany, N. Y.—Trus. of Third Reformed Church intend erecting an edifice in Delaware Ave.; cost \$35,000.

East Rochester, N. Y.—A 3-story reinforced concrete department store building is to be erected by B. J. Fryatt.

Jamestown, N. Y.—Bids reported desired by the Odd Fellows Bldg. Assoc. for a temple, according to plans by Freeburg & Fidler, of Jamestown.

Olean, N. Y.—Directors of the First Natl. Bank have approved plans of Mowbray & Uffinger, 56 Liberty St., New York, for 7-story fireproof granite and brick bank and office building on W. State and N. Union Sts.

Niagara Falls, N. Y.—Plans prepared by Simon Larke, 608 Elmwood St., for brick and steel synagogue to be erected on Ashland Ave. by Congregation Beth El.

Cortland, N. Y.—Bids reported desired for erecting the Y. M. C. A. Building.

Rochester, N. Y.—Aerie 52, Fraternal Order of Eagles, is reported to have secured the site at 32 N. Washington St. and will erect a 3-story brick building.

Contract awarded to the Gorsline Swan Constr. Co., Rochester, for erecting 2-story brick, steel and terra cotta theater and office building on East Ave. and Chestnut St. for East Amusement Co.; cost, \$125,000.

General contract for 5-story warehouse on State and Franklin Sts. for Rochester Candy Co., has been awarded to A. W. Hopenam & Sons Co., Lyell Ave.

Buffalo, N. Y.—A brick and stone edifice is to be erected on Best and Herman Sts. by the Humboldt Sq. Church of the Evangelical Assoc., 397 Herman St.; cost, \$40,000.

General contract awarded to Geo. Schaag, 358 Kingsley St., for erecting brick and stone edifice on Indian Church Ave. for St. Paul Evangelical Reformed Church; cost, \$35,000. Geo. Setter, 33 Burch Ave., Archt.

Contract awarded to Butler & Mills, 41 Park View Ave., for erecting a steel and brick church and rectory on W. Perry St. and Linwood Ave. for All Saints Episcopal Church; cost, \$35,000. Steel contract awarded to Buffalo Structural Steel Co.

Norwich, N. Y.—Contract for erecting the theatre for the Chicago Theatre Corp. awarded to C. Cummings, of Norwich, for heating and plumbing to Nash & Robinson; cost, \$60,000.

Jersey City, N. J.—Contract for 5-story reinforced concrete stable and garage for Great Atlantic & Pacific Tea Co., at Provost and Bay Sts., awarded to Turner Constr. Co., 11 Bway., New York, N. Y.

Lancaster, Pa.—Plans for alterations to the Woolworth Building on N. Queen St., costing \$35,000, to be prepared by Emlen C. Urban, of Lancaster.

Sunbury, Pa.—Plans to be prepared for new church for Zion Lutherans; cost, \$75,000.

Contract for rebuilding the "City Hotel" recently damaged by fire awarded to I. O. Fetter, of Sunbury; cost, \$100,000.

Waynesboro, Pa.—Steps being taken to erect the Y. M. C. A. building for which there is \$165,000 available.

Plans to be prepared by J. W. Woltz, of Waynesboro, for First United Brethren Church; cost, \$40,000. Rev. Dr. Lower Grimm, Pastor.

Roanoke, Va.—Contract awarded to Herrington & Normoyle, for erecting Y. M. C. A. Building on Commerce St. and Church Ave., at about \$90,000.

Contract for erecting a 4-story fireproof building on Jefferson St. and Church Ave. has been awarded to Pettyjohn & Co., of Lynchburg; cost \$150,000.

Weston, W. Va.—Contract for general construction of Roman Catholic Church and school awarded to Caine & Co., Elkins, at \$53,376.

Durham, N. C.—Contract for new bank and office building for First Natl. Bank awarded to Geo. A. Fuller Co., Washington, D. C., on the percentage basis; cost, \$200,000. Milburn, Heister & Co., Washington, D. C., Archts.

Contract for new foundation and remodeling of the First Natl. Bank Building, which is to be removed to adjoining property, has been awarded to Geo. A. Fuller Co., Washington, D. C.; cost, \$25,000. Milburn, Heister & Co., Washington, D. C., Archts.

Asheville, N. C.—Plans prepared for 3-story brick apartment house to be erected on N. French Broad Ave. and Haywood St. by a company in which Dr. J. A. Sinclair is interested.

Savannah, Ga.—Contract for South Side Baptist Church awarded to A. A. Artley, Savannah, at \$54,051.

Jacksonville, Fla.—Thos. M. Wilson, Prop. of Wilson Hotel, intends make improvements and alterations which to cost \$60,000.

Birmingham, Ala.—Contract awarded to Evans Bros. Constr. Co., 2310 Ave. for erecting Earl Building at First and 9th St.; cost \$75,000.

Contract awarded to Carroll E. Constr. Co., for erecting an apartment house at 20th St. and 13th Ave., for K. Steiner; cost \$65,000.

Bids reported desired until May 2 Chief Engineer, M. W. & S. South R. F., Washington, D. C., for erecting roundhouse, one-half circle, at North Birmingham. Cost, \$100,000.

Birmingham, Ala.—Kress & Co. erect on 2d Ave. and 19th St. a 4-reinforced concrete building; cost, \$75,000. Four-story brick building of Birmingham Ry., Light & Power Co. reported destroyed by fire.

Memphis, Tenn.—Plans for synagogue for Congregation Children of Israel Poplar Ave. and Montgomery St. prepared by Jones & Furbinger, P. Bldg.; cost \$150,000.

Nashville, Tenn.—Plans of Wm. Weston, Birmingham, Ala., for 6-story commercial building for Fred. Larkin others have been accepted; cost, \$300,000.

Chattanooga, Tenn.—Contract for erecting the Chattanooga Golf and Country Club house has been awarded to Becking, of Chattanooga; cost \$50,000.

Paris, Ky.—Bids desired until June 1 by Com. Y. M. C. A. for erecting building.

Maysville, Ky.—Plans prepared for 3-story concrete iron and brick Oddfelloes Temple on Market St.; cost, \$40,000.

Canton, O.—Brick edifice costing \$900 is to be erected for the Duesber M. E. Church.

Youngstown, O.—Contract for the reinforced concrete steel needed in Y. M. C. A. building has been awarded to Trussed Concrete Steel Co., at \$15,000.

Cleveland, O.—Plans prepared for C. tian Natl. Hall to be erected on St. Ave. and E. 40th St.; cost, \$60,000.

Xenia, O.—Plans prepared by E. Gerber, of Dayton, for Masonic Temple, cost, \$30,000.

Rayland, O.—Bids reported desired June 1 by Geo. H. Dieringer, Archt., Huron St., Wheeling, W. Va., for erecting 1-story and balcony, 50 x 120 ft., for Bellaire Amusement Co., care Magna, Bellaire. Cost, \$20,000.

East Liverpool, O.—Contract for erecting McKinley Theatre awarded to P. Lumber Co., East Liverpool; cost, \$40,000. Clepper & Owens, Sharon, Pa., Archts. Plans have been prepared for a house for the Elks; cost, \$50,000.

Kokomo, Ind.—Contract awarded to John Schumacher Co., Indianapolis, for 3-story Citizens Natl. Bank, at about \$90,000.

Lafayette, Ind.—Contract for erecting 8-story hotel has been awarded to C. well & Drake, Columbus, Ind.; cost, \$400,000.

Detroit, Mich.—The Central Methodist Church, Grand Circus Park, reported to be considering erecting 5-story church house on Adams St.; cost, \$300,000.

Grand Rapids, Mich.—St. Anthony's, Hamilton Ave., N. W., is reported to be taking steps to erect an edifice costing \$50,000.

Highland Park, Mich.—Plans prepared by Robertson & Egnow, Detroit, for 3-story hotel to be erected on Buena Vista and Oakland Aves.; cost, \$60,000.

Galesburg, Ill.—General contract for erecting Hotel Custer awarded to M. mouth, Galesburg Constr. Co., of M. mouth, at \$70,000.

Chicago, Ill.—Plans being prepared for reconstructing Homewood Country Club recently destroyed by fire; cost, \$60,000. Plans completed by Albert Anis, N. Irving Ave., for 6-story fireproof business building to be erected on Milwaukee and Chicago Aves. for Max Silver; cost, \$175,000.

Rock Island, Ill.—Plans have been prepared by H. W. Whittitt for the First Congregational Church to be erected on Bedford stone on 17th Ave. and 22d St.; cost, \$53,000.

First Church of Christ (Scientist) intends erecting a new edifice costing \$25,000.

Champaign, Ill.—Contract for 5-story hotel awarded to English Bros., Champaign, at \$75,000.

Green Bay, Wis.—Bids reported desired until May 26 by Foeller & Scho. Archts., Green Bay, for erecting on River a 2-story concrete and brick school and office building, cost \$30,000.

LaCrosse, Wis.—Contract for erecting St. Wenceslaus Bohemian Catholic Church awarded to Western Concrete at \$24,776, and for heating to J. H. Heit at \$1,796.

Kellnersville, Wis.—A Roman Catholic church costing \$25,000 is to be erected here.

*Items marked thus give the names of parties awarded contracts.

Madison, Wis.—Steps being taken by us. of Christ Presbyterian Church for building edifice recently seriously damaged by fire. Probable cost, \$50,000.

Wausau, Wis.—Bd. Trus. of First Unitarian Church has approved plans for \$40,000 edifice. St. John's Episcopal Church reported as taking steps to erect new edifice, stinging about \$25,000.

Muscatine, Ia.—Bids reported desired until May 26 by Paul V. Hyland, Archt., E. Madison St., Chicago, Ill., for erecting 7-story and basement, 141 x 60 ft., hotel for Muscatine Hotel Co. Probable cost, \$200,000.

Dubuque, Ia.—Bids reported desired for erecting the Elks Club.

Windom, Minn.—Bids desired until June by Secretary Bldg. Com., for erecting ore and I. O. O. F. Hall. Albert Schippl, Archt., Mankato.

Two Harbors, Minn.—The Yeomen propose erecting a brick and concrete building; cost, \$23,000.

St. Paul, Minn.—Contract for the 13-story Hill office building on 4th, 5th and Jackson Sts. reported awarded to Grant Smith & Co., St. Paul; cost, complete, \$500,000. Structural steel contract awarded to Carnegie Steel Co., Johnstown, Pa.

Faribault, Minn.—Plans being prepared for new edifice for First Methodist Church, 3d St. and 4th Ave.; cost, \$35,000.

Wausau, Neb.—Separate bids desired until June 1 by P. H. Peterson, Chmn. Bldg. Com., for erecting a Masonic building, and by H. E. Johnson for erecting building adjoining said Masonic building. J. E. Bagstrom, Archt., Wausau.

Watertown, S. D.—Contract for erecting Masonic Temple awarded to Gray Constr. Co., of Watertown; cost \$50,000.

Lewistown, Mont.—Contracts for erecting the theater on Main St. and for an addition to the garage of the Lewistown Auto Co. have been awarded to J. P. Constr. Co. at a total cost of about \$100,000. Link & Haire, Lewistown, rights.

Great Falls, Mont.—Contract for bank and office building for L. & S. Ford, commercial Natl. Bank, is reported to have been awarded to the Brayton Eng. Co., Portland, Ore. Cost about \$250,000. Henry Hall Johnson, Henry Bldg., Seattle, Wash., Archt.

Marceline, Mo.—Bids desired until June by Bldg. Com., for furnishing material and erecting a 2-story and basement brick club house for Order of Eagles, Marceline, 726. Floyd B. Fitch, Archt., Marceline.

Kansas City, Mo.—Contract for erecting hotel for Muehlebach awarded to Vestlake Constr. Co., St. Louis. Holard & Roche, Archts., 104 Michigan Ave., Chicago, Ill.

Houston, Tex.—Contract for apartment house on Austin St. and Rusk Ave. or L. Kaiser awarded to G. Hartmann Constr. Co., at \$32,500.

Denton, Tex.—Plans accepted by Trus. or First Baptist Church; cost, \$50,000.

San Antonio, Tex.—Plans completed for 3-story steel and reinforced concrete building to be erected on Commerce and St. Mary's Sts., by Mrs. Johanna Steves.

Seattle, Wash.—Jas. B. O'Shea and J. O'Shea, owners of the Boston Packing Co. plant, Portland, Ore., propose erecting on 5th and Pine Sts. a hotel costing \$200,000.

Plans completed by Carl F. Gould, Jany Bldg., for residence for J. H. Bloell at Harvard Ave. and Aloha St.; cost, \$50,000; also residence for C. X. Arabee, in South Bellingham; cost, \$50,000.

Plans being prepared by Howells & Stokes, Henry Bldg., for 10-story reinforced concrete and brick hotel on 4th Ave. and University St., to be known as Hotel Kennedy; cost, \$250,000; also plans for 5-story brick hotel for Mrs. S. E. Peirce at 8th Ave. and Pine St.

Contract awarded to Hans Pederson, Madison Bldg., for erecting 6-story office and theater building for Alex. Pantages, at 3d and University Sts., at \$200,000. B. Marcus Pretica, Empire Bldg., Archt.

Portland, Ore.—Bids reported desired for erecting 4-story brick apartment house on Madison and Park Sts. for Chas. C. Brown, according to plans by Claussen & Claussen, Macleary Bldg.

San Pedro, Cal.—Plans to be prepared by Thornton Fitzhugh, Los Angeles, for First Methodist Church, 6th St. and Grand Ave.; cost, \$100,000.

Los Angeles, Cal.—Plans being prepared by Fred Noonan & Wm. Richards, 609 Brockman Bldg., for a 6-story reinforced concrete and terra cotta department store on 7th and Grand Sts. for J. W. Robinson Co.; cost, \$75,000.

Plans being prepared by Reid Bros., California Pacific Bldg., San Francisco, for 7-story office and bank building for H. C. Merrill at 8th and Spring Sts.; cost, \$300,000.

Banning, Cal.—Plans being prepared by J. Martin Haenke, Los Angeles, for 3-story reinforced concrete hotel for Gateway Inn Co., cost \$250,000.

Venice, Cal.—Plans completed by C. H. Russell, San Francisco, for 5-story hotel to be erected on Windward Ave. by C. W. Holbrook and others; cost, \$75,000.

San Francisco, Cal.—Plans to be prepared by Albert Schroeffer, Foxcraft Bldg., for hotel on Townsend and 3d Sts.; cost, \$250,000.

Sacramento, Cal.—Plans completed for the 4-story brick building for the Native Sons of the Golden West, to be erected on 11th and K Sts.; cost, \$140,000.

Ogden, Utah.—Plans approved as prepared by Shreeve & Madsen, of Ogden, for motion picture theatre to be erected by the Alabama Theatrical Co.; cost, \$165,000.

Quebec, Que.—Bids desired until June 2 by Comrs. Transcontinental Ry., Ottawa, Ont., for erecting railway station with covered platform on Champlain Market site, Quebec. Gordon Grant, Ch. Engr., Ottawa, Ont.

St. George, B. C.—Contract for 4-story fireproof hotel for A. Brown awarded to W. A. Gillette, of Vancouver, B. C., at about \$125,000.

NEW INDUSTRIAL PLANTS.

See also "Private Buildings."

Items Arranged Geographically

Rumford, Me.—Contract for erecting an addition to the machine room, 216x94 ft.; addition to the heater room, 75 x 94 ft., and evaporator building, 30 x 70 ft., at the plant of the Oxford Paper Co., awarded to H. P. Cummings Constr. Co., Ware, Mass.

Worcester, Mass.—Hart Renting & Power Co. propose erecting a 4-story addition to and 2 additional stories on building occupied by Worcester Paper Box Co.

Fairhaven, Mass.—Jean B. Jean, of New Bedford, reported president of a company which intends erecting a 1-story brick, 180 x 100 ft. silk mill here.

Long Island City, L. I., N. Y.—See "Public Buildings and Schools."

Jamestown, N. Y.—Plans being prepared for a 3-story 80 x 160-ft. factory for the Koehl Paper Box Co.

Buffalo, N. Y.—Plans prepared by Day & Zimmerman, Philadelphia, Pa., for 3-story reinforced concrete factory for Buffalo Shirt Co.

Lowest bidder for erecting 1-story reinforced concrete, 135 x 160 ft. printing plant for J. W. Clement Co., on Seneca, Lord and Seymour Sts., submitted by Eastern Concrete Steel Co., Morgan Bldg., at \$130,000.

Bids desired by A. E. Baxter Co., 931 Ellicott Sq. Bldg., for erecting grain elevator and feed mill at Toisut St. and N. Y. Central R. R.; cost \$200,000.

General contract awarded to Turner Constr. Co., 311 Prudential Bldg., for erecting 5-story reinforced concrete addition, 118 x 255 ft. to leather manufacturing plant of Geo. Lamb Sons, Clinton St. and Erie R. R.

Canandaigua, N. Y.—Bids will soon be asked by Lisk Mfg. Co. (C. C. Keehn, Gen. Mgr.) for erecting an addition 20 ft. x 60 ft. to the stamped and enamel plant. Leon Stearns, Archt., Chamber of Commerce Bldg., Rochester.

Gloversville, N. Y.—General contract awarded to Wm. Steele & Sons Co., 1600 Arch St., Philadelphia, Pa., for erecting 3-story leather manufacturing plant, 60 x 245 ft., for G. Levor & Co., 88 Gold St., New York, N. Y.

Lyons, N. Y.—Contract for erecting 3-story fireproof tile and reinforced concrete plant for the Lyons Cold Storage Co. awarded to Voshall & Perry Co., of Rochester, at \$40,000.

Albany, N. Y.—General contract for 3-story bakery and refrigerating plant for C. F. Schipp & Son, awarded to Maurice Mead, Orange St.; cost \$30,000. L. B. Beardsley, Archt., 38 W. 32d St., New York, N. Y.

Philadelphia, Pa.—Plans prepared by Sauer & Hahn, 1112 Chestnut St. for 5-story 50x208 ft. reinforced concrete factory to be erected in rear of plant of J. Sullivan & Son.

Plans prepared by Day Bros. & Klauder, 925 Chestnut St., for 6-story brick and concrete factory to be erected on 11th and Brandywine Sts. for Edw. J. Schoettel Co.

Birmingham, Ala.—Ingalls Iron Co. (M. F. Thornton, Secy.-Treas.), 2618 1st Ave., intends erecting a plant on the Louisville & Nashville R. R., between Avenues C and D; cost, \$100,000.

Cleveland, O.—Preliminary drawings for the first building of Ford Motor Co. assembly plant on Euclid Ave. and 117th St. have been prepared and provide for a 4-story, reinforced concrete, brick and terra cotta, fireproof building, 157 x 295 ft.

Warren, O.—Western Reserve Steel Co. intends erecting a plant here; cost \$600,000.

South Bend, Ind.—Plant of South Bend Woolen Co. is to be improved at a cost of \$200,000.

Detroit, Mich.—A site is reported to have been secured near plant of Ford Co. on Woodward Ave. on which Ford Co. proposes erecting a plant for the manufacture of low-priced electric cars.

Clinton, Ill.—The Northwestern Ry. (E. C. Carter, Ch. Engr., Chicago, Ill.) intends erecting railroad shops in this city to cost \$100,000.

Davenport, Ia.—Purity Oats Co. intends erecting a corn mill adjoining present plant on Pine and Faxon Sts.; cost, \$60,000.

MISCELLANEOUS.

See also "Hydraulic Construction and River Improvements."

Items Arranged Geographically

Cable-Fall River, Mass.—Bids desired until May 26 by Bd. Fire Comrs., care City Auditor, for furnishing and delivering 1, 0. b. Fall River, about 4000 ft. 8, 6 and 4 conductor, No. 14 copper wire, b-32-in. rubber-insulated lead-incased cable.

Locomotive Crane-Boston, Mass.—Bids desired until June 13 at Bureau Yards and Docks, Navy Dept., Washington, D. C., for Spec. 2070-20-ton locomotive crane delivered and erected at Navy Yard, Boston.

Cement-Boston, Mass.—Bids desired until May 29 by Superintendent Supplies for furnishing 4000 bbls. cement.

Tank-Providence, R. I.—Bd. Contract and Supply May 11 awarded contract for precipitation tank at Field's Point, to Wanham, Sanger & Bates, New York, at \$2,575.

Float-Newport, R. I.—Bids desired until June 6 by Chief Bureau Yards and Docks, Navy Dept., Washington, D. C., for concrete float and wooden brow for U. S. Naval Hospital.

Seawall-Bridgeport, Conn.—Plans of City Engineer approved by Bd. of Park Comrs. for constructing seawall from Seaside Park to Payerwether Island. They provide for 500 ft. of wall, to cost approximately \$15,000.

Lumber-New York, N. Y.—Bids opened by Dept. of Bridges May 9, for furnishing and delivering creosoted yellow pine lumber to Department, rejected, owing to a tie between two parties in the low bid; will be readvertised.

Park Improvements-Philadelphia, Pa.—Bids opened May 15 by Director Dept. Pub. Wks. for improving League Island Park; Sutton & Corson Co. and Hill Dredging Co., \$686,209; Du Pont Eng. Co., \$632,426; John J. Hart, \$547,362; E. H. Vane, Philadelphia, \$523,565 (awarded contract).

Playgrounds-Philadelphia, Pa.—Bids desired until June 1 by Bd. Recreation for work at Kingessing Playgrounds, Chester Ave., including brick and stone posts, concrete and cement coping, iron fence, etc. Philip H. Johnson, Archt., Land Title Bldg.

U. S. Govt. Supplies-Washington, D. C.—Bids desired until June 9 at Bureau Supplies and Accounts, Navy Dept., Washington, D. C., for furnishing at Navy Yards and Naval Stations supplies as follows: Brooklyn, N. Y., Sch. 6808—6300 condenser tubes, admiralty metal, 5/8 in. O. D., 65 mils thick, 13 ft. 2 1/4 in. long. Norfolk, Va., Sch. 6808—2100 brass admiralty mixture, seamless drawn, 2 in. O. D., 5 ft. 10 in. long, 109 mils thick, evaporator tubes. Boston, Mass., Sch. 6800—2000 lbs. 0.030 in. diam. plow steel wire; 6000 lbs. crucible cast, galvanized steel wire. Washington, D. C., Sch. 6799—Miscellaneous brass and iron gate valves; miscellaneous globe and angle brass and iron valves, etc. Bids desired until June 16 as follows: Mare Island, Cal., Sch. 6781—3 2-motor electric traveling cranes. Puget Sound, Wash., Sch. 6782—2 cranes, 15 and 40 tons, with 5-ton auxiliary hoists. All Yards, Sch. 6788—Semi-annual supply Portland cement in cloth bags, etc. Applications for proposals should designate the schedules desired by number.

Ash Hopper, Etc.—Washington, D. C.—Bids desired until May 25 by Public Printer, U. S. Govt. Printing Office, for furnishing and installing an ash hopper and conveyor in power plant of said office.

Barges-Cincinnati, O.—Bids desired by Lieut.-Col. H. Jervay, Corps Engrs. U. S. A., until June 12 for 3 steel deck barges, advertised in Engineering Record.

Wall, Etc.—Cincinnati, O.—Bids desired until June 8 by Bd. Hospital Comrs., for brick wall and iron fence for inclosing hospital grounds, gate houses, gates, etc., new General Hospital. Saml. Hannaford & Sons, Archts., Hulbert Bldg.

Lumber-Chicago, Ill.—Four lowest bids opened Apr. 28 at U. S. Engineer's office for furnishing fir timber for use in repairing breakwaters in Calumet Harbor, Ill., and Michigan City Harbor, Ind.: Union Lumber Co., Union Mills, Wash., \$16,431; A. W. Miller Saw Mill Co., Seattle, Wash., \$16,317; Lumber Manufacturers' Agency, Contralla, Wash., \$16,846; Keystone Lumber Co., Buffalo, N. Y., \$16,926.

Culverts-Shakopee, Minn.—Bids desired until July 13 by County Auditor, for culverts to be used in construction of State roads for year 1914.

Fish Hatchery-Granite Falls, Minn.—Bids desired until June 2 by State Game and Fish Comm., St. Paul, for constructing fish hatchery. P. J. Linhoff, Archt., Germania Life Bldg., St. Paul.

Boilers for Tow Boat-St. Paul, Minn.—Bids desired until June 9 by Lieut.-Col. Chas. L. Potter, Corps Engrs., U. S. A., St. Paul, for furnishing two 35-hp gasoline marine engines for the twin screw tow boat "Animiki," advertised in Engineering Record.

Elevator, Etc.—Wichita, Kan.—Bids desired until June 15 by Superv. Archt., Washington, D. C., for removal of present elevator and installation complete of new hoistway, electric passenger elevator, a new hydraulic lift, etc., in U. S. Court House, Post Office, etc.

Chimney-Galveston, Tex.—Bids desired until May 23 by Bd. City Comrs., Galveston, for erecting concrete chimney, 60 in. diam., 100 ft. high, along side of proposed building extension at Alta Loma.

Elevators-Denver, Colo.—Contract for stars for U. S. Post Office awarded to Otis Elevator Co., Washington, D. C., at \$36,883.

Cement-Anacortes, Wash.—Contract for 15,000 bbl. cement awarded to Washington Portland Cement Co., Seattle.

Tunnel-Seattle, Wash.—Bids desired by Bd. of Pub. Wks. until May 29 for constructing 950-ft. tunnel under Lake Union and for two 150-ft. shafts of brick; cost about \$180,000.

Elevators, Etc.—Seattle, Wash.—Bids desired until May 27 by Port Comrs., 843 Central Bldg., for constructing spiral chutes, freight elevators; also rails and appurtenances for East Waterway Improvement.

Tunnel-Sedro Woolley, Wash.—All bids Apr. 23 by State Bd. of Control, Olympia, for constructing tunnel and overhead crossing at Insane Asylum rejected, being above appropriation. McHugh & Creelman, Tacoma, bid for work \$28,914, and Western Eng. Co., at \$7,487 for steam piping; work to be done by day labor.

Brick Chimneys, Toronto, Ont.—Bids desired until June 9 by Chairman Bd. Control for circular chimneys, advertised in Engineering Record.

Street Name Posts-Winnipeg, Man.—Bids desired until June 15 by Chmn. Bd. Control, for street name posts and name plates.

Tower-San Juan, P. R.—Bids desired until June 4 by Lighthouse Inspector, for furnishing and delivering f.o.b. San Juan, metal work for 5 steel towers.

Derricks, Etc.—Panama.—Bids desired until June 3 by General Purchasing Officer, Panama Canal, Washington, D. C., for Cir. 853—Steel derricks, complete, with operating hoists, electroliers, w.-i. and steel pipe, vitr. sewer pipe, etc.

Oil Handling Plant-Panama.—Bids desired until June 11 by General Purchasing Officer, Panama Canal, Washington, D. C., for oil handling plants, including pumps, headers, valves, pipe and fittings, centrifugal pump, unit complete with motor, etc., according to Circular 854, advertised in Engineering Record.

Towers-Panama.—Contract reported awarded to Toledo Bridge & Crane Works, Toledo, O., for towers for the Panama Radio Station, to be constructed near Colon.

Proposals

For Proposals Advertised see Pages 42, 43, 44 and 45.

WATERWORKS.

Bids Close.	See Eng. Record.
May 26. Mains, Etc., Wallaceburg, Ont.	May 16
May 26. Reservoir, Perry, Ia.	May 16
May 26. Valves, Calgary, Alta.	May 23
May 26. Pipe, Toronto, Ont.	May 23
May 27. Add. Works, Lancaster, S. C.	May 16
May 27. Pump, Etc., Monroe, Wis.	May 16
Adv. May 16.	
May 27. Meters, Kansas City, Mo.	May 23
May 29. Mains, Ft. Casey, Wash.	May 23
May 29. Pumps, Youngstown, O.	May 23
Jun. 1. Pipe, Calgary, Alta.	May 9
Jun. 1. Add. to Supply, Ft. Stevens, Ore.	May 16
Jun. 1. Pipe, Burnaby, B. C.	May 16
Jun. 1. Filtration plant, Washington, Kan.	May 16
Jun. 1. Improvements, Freeburg, Ill.	May 23
Jun. 1. Additions, Alexandria, Minn.	May 23
Jun. 1. Tower and Tank, Bushnell, Ill.	May 23
Jun. 2. Improvements, Beaumont, Tex.	May 23
Jun. 2. Mixer, St. Louis, Mo.	May 23
Jun. 3. Pipe, Panama	May 23
Jun. 4. System, Arkport, N. Y.	May 16
Adv. May 16, 23.	
Jun. 8. Add. to Standpipe, Glendale, O.	May 16
Jun. 9. Water Works, Vebien, S. D.	May 23
Adv. May 23.	
Jun. 10. Tank and Tower, Emporia, Va.	May 16

★Items marked thus give the names of parties awarded contracts.

Bids Close.	See Eng. Record.	Bids Close.	See Eng. Record.	Bids Close.	See Eng. Record.	Bids Close.	See Eng. Record.
Jun. 10. Tank, Appleton, Wis..... May 23		May 28. Santa Ana, Cal. May 23		Jun. 16. Earth on Canals, Grand Junction, Colo. May 2		Jun. 5. Leavenworth, Kan. May	
Jun. 12. Centrifugal Pumps, Washington Barracks, D. C. May 23		May 28. Buffalo, N. Y. May 23		Adv. May 2 to 16.		Jun. 5. Skillman, N. J. May	
Jun. 16. Pumps, Toronto, Ont. May 2		May 29. Indiana May 16		Jun. 17. Drainage System, New Orleans, La. Apr. 25		Jun. 5. Ocala, Fla. May	
Adv. May 2.		May 29. Hackensack, N. J. May 16		Adv. Apr. 25 to May 23.		Jun. 5. Waterbury, Conn. May	
Jun. 17. Buildings Contr. 23, Baltimore, Md. May 23		May 29. Greenwich, Conn. May 16		Jun. 18. Dredge, San Francisco, Cal. Apr. 25		Jun. 5. St. Louis, Mo. May	
Adv. May 23.		Adv. May 16, 23.		Adv. Apr. 25 to May 23.		Jun. 5. Napanee, Ont. May	
Jun. 17. Improvements, Washington, N. C. May 23		May 29. Logansport, Ind. May 23		Jun. 18. Trestle, Etc., for Dams, Wheeling, W. Va. May 23		Jun. 5. Louisville, Ky. May	
Adv. May 23.		May 30. Fairgrange, Ill. May 23		Adv. May 23.		Jun. 5. Institute, W. Va. May	
SEWERAGE AND SEWAGE DISPOSAL.				Jul. 15. Competition for Harbor Extension, Helsingborg, Sweden Jan. 24		Jun. 6. Newport, Ark. May	
May 25. Lebanon, Pa. Apr. 18		Jun. 1. Alexandria, La. May 9		Adv. May 23.		Adv. May 2, 9.	
Adv. Apr. 18 to May 23.		Jun. 1. Jacksonville, Fla. May 16		Jun. 20. Jetty, New Orleans, La. May 23		Jun. 6. Rowan, Ia. May	
May 26. Sault Ste. Marie, Ont. May 9		Jun. 1. Rockford, Wash. May 16		Adv. May 23.		Jun. 6. Chelsea, Mass. May	
May 26. Canton, O. May 9		Jun. 1. Steelton, Pa. May 16		Drain Tile, Van Vleck, Tex. May 23		Jun. 6. Trenton, N. J. May	
Adv. May 9.		Adv. May 16, 23.		POWER PLANTS, GAS AND ELECTRICITY.			
May 26. Wallaceburg, Ont. May 16		Jun. 1. Indiana May 16		May 25. Hudson, N. Y. May 9		Jun. 8. New Madrid, Mo. May	
May 26. Toronto, Ont. May 16		Jun. 1. Seattle, Wash. May 16		Adv. May 9, 16.		Jun. 8. Cleveland, O. May	
May 26. Cincinnati, O. May 16		Jun. 1. Ft. Benton, Mont. May 23		May 26. Hartford, Conn. May 16		Jun. 8. Breckville, O. May	
May 26. Belleville, N. J. May 16		Jun. 1. Los Angeles, Cal. May 23		May 26. St. Louis, Mo. May 16		Jun. 8. Phoenix, Ariz. May	
May 26. Aledo, Ill. May 23		Jun. 1. Burlington, Ky. May 23		May 27. Greenville, N. C. May 23		Jun. 9. Chico, Cal. May	
May 27. Lancaster, S. C. May 9		Jun. 1. Dayton, Ore. May 23		May 28. Chicago, Ill. May 23		Jun. 10. Lake City, Minn. May	
May 27. Long Island City, L. I., N. Y. May 23		Jun. 1. Winamac, Ind. May 23		May 28. Shoal Lakes, Man. May 9		Jun. 10. Minneapolis, Minn. May	
May 27. Middletown, Ind. May 23		Jun. 1. Colfax, Wash. May 23		May 28. Greeley, Ia. May 16		Jun. 10. Hutchinson, Minn. May	
May 27. Ashland, Wis. May 23		Jun. 1. San Jose, Cal. May 23		May 28. Galveston, Tex. May 16		Jun. 11. Bennettsville, S. C. May	
May 28. Cadillac, Mich. May 9		Jun. 1. Ft. Myer, Va. May 23		May 29. Mayville, N. D. May 9		Jun. 12. Winchester, Tenn. May	
Adv. May 9 to 16.		Adv. May 23.		May 30. Saskatoon, Sask. May 16		Jun. 12. Kingman, Ariz. May	
May 28. West Point, N. Y. May 23		Jun. 1. Wytheville, Va. May 23		May 30. Ft. Wayne, Ind. May 16		Jun. 12. Cleveland, O. May	
May 29. Buffalo, N. Y. May 23		Jun. 1. Mart, Tex. May 23		Jun. 1. Ft. Benton, Mont. May 23		Jun. 13. Covington, Tenn. May	
Jun. 1. Hammond, Ind. May 23		Jun. 2. Bowling Green, O. May 9		Jun. 1. Lansdale, Pa. May 23		Adv. May 9, 16.	
Adv. May 23.		Jun. 2. Indiana May 16		Jun. 2. Little Rock, Ark. May 9		Jun. 13. Farmingdale, N. Y. May	
Jun. 1. Glen Cove, L. I., N. Y. May 16		Jun. 2. Port Angeles, Wash. May 23		Jun. 5. Muskogee, Okla. May 9		Jun. 14. Arkansas City, Ark. May	
Adv. May 16, 23.		Jun. 2. New Britain, Conn. May 23		Jun. 9. Philadelphia, Pa. May 23		Jun. 15. McPherson, Kan. May	
Jun. 1. Mitchell, S. D. May 23		Adv. May 23.		Jun. 10. Minneapolis, Minn. May 9		Jun. 15. Macomb, Ill. May	
Jun. 1. Faribault, Minn. May 23		Jun. 2. Belvidere, N. J. May 23		Jun. 10. Boston, Mass. May 9		Jun. 15. Bowling Green, O. May	
Jun. 1. Cincinnati, O. May 23		Jun. 2. Aberdeen, Miss. May 23		Jun. 10. San Francisco, Cal. May 16		Jun. 15. Canton, Kan. May	
Jun. 3. Panama. May 23		Jun. 2. St. Clairsville, O. May 23		Jun. 10. Williamsport, Pa. May 16		Jun. 15. Springfield, Ill. May	
Jun. 8. Armour, S. D. May 23		Adv. May 23.		Adv. May 23.		Jun. 15. Cleveland, O. May	
Jun. 8. Britton, S. D. May 23		Jun. 2. Ohio. May 23		July 1. Mansfield, O. May 23		Jun. 16. Gastonia, N. C. May	
Adv. May 23.		Jun. 2. Rosemond, Ill. May 23		PUBLIC BUILDINGS AND SCHOOLS			
Jun. 9. Woonsocket, R. I. May 23		Jun. 2. Marshall, Minn. May 23		May 26. Elida, O. May 9		PRIVATE BUILDINGS	
Jun. 9. Lakefield, Minn. May 23		Jun. 2. Columbus, O. May 23		May 26. Mansfield, O. May 9		May 26. Muscatine, Ia. May	
Jun. 15. Mobile, Ala. May 16		Jun. 2. Indiana May 23		May 26. Paulding, O. May 9		May 28. Birmingham, Ala. May	
Adv. May 16.		Jun. 2. Ohio. May 23		May 26. Boston, Mass. May 16		Jun. 1. Rayland, O. May	
Jun. 16. Sect. 17, Newark, N. J. May 23		Jun. 2. Youngstown, O. May 23		May 26. Paisley, Ont. May 16		Jun. 1. Marceline, Mo. May	
Adv. May 23.		Jun. 3. Cincinnati, O. May 23		May 26. Toronto, Ont. May 16		Jun. 1. Wausau, Neb. May	
Jun. 16. Akron, O. May 23		Jun. 3. Cleveland, O. May 23		May 26. Lincoln, Neb. May 23		Jun. 2. Paris, Ky. May	
Adv. May 23.		Jun. 3. Indiana. May 23		May 26. Sussex, N. B. May 23		Jun. 2. Quebec, Que. May	
Jun. 17. Washington, N. C. May 23		Jun. 4. Indiana May 23		May 27. Pulaski, Tenn. Apr. 17		Jun. 2. Windon, Minn. May	
Adv. May 23.		Jun. 4. Atlantic City, N. J. May 23		Adv. Apr. 18, 25.		Jun. 25. Macon, Ga. May	
Jun. 23. Sect. 9, Newark, N. J. May 23		Adv. May 23.		May 27. San Antonio, Tex. May 9		Jun. 30. Venice, Italy Mar.	
Adv. May 23.		Jun. 4. Woodbury, N. J. May 23		May 27. Salem, Ont. May 9		MISCELLANEOUS.	
BRIDGES.				May 27. Barrie, Ont. May 16		May 26. U. S. Govt. Supplies, Washington, D. C. May	
May 26. St. Catharines, Ont. May 9		Jun. 5. Indiana May 23		May 27. Deposit, N. Y. May 23		May 26. Cable, Fall River, Mass. May	
Adv. May 9.		Jun. 6. Newport, R. I. May 16		May 27. Le Mars, Ia. May 23		May 27. Elevators, Etc., Seattle, Wash. May	
May 26. Troy, N. Y. May 16		Jun. 8. Albany, N. Y. May 23		May 27. Rossford, O. May 23		May 28. Garbage, St. Petersburg, Fla. May	
May 26. Estherville, Ia. May 16		Adv. May 23.		May 27. Trenton, N. J. May 23		May 28. E. R. Work, Buffalo, N. Y. May	
May 26. Port Coquitlan, B. C. May 16		Jun. 8. California. May 23		May 28. Canton, O. Apr. 25		May 28. Chinney, Galveston, Tex. May	
May 27. Indianapolis, Ind. May 2		Jun. 8. Roanoke, Va. May 23		May 28. Dayton, O. May 2		May 29. Steel Bars, Etc., Panama. May	
May 27. Paterson, N. J. May 23		Jun. 9. Oil City, Pa. May 23		May 28. Albany, N. Y. May 9		May 29. Cement, Boston, Mass. May	
May 28. Philadelphia, Pa. May 9		Jun. 10. St. Marys, Pa. May 16		Adv. May 9 to 23.		May 29. Tunnel, Seattle, Wash. May	
May 28. Westfield, Mass. May 16		Adv. May 16, 23.		May 28. Bridgeport, O. May 16		Jun. 1. Tow Boat, Nashville, Tenn. Apr.	
May 29. Dillon, Mont. May 9		Jun. 10. Neenah, Wis. May 23		May 28. Norwich, Ont. May 16		Adv. Apr. 25 to May 23.	
May 29. San Antonio, Tex. May 16		Jun. 10. Beulah, Mich. May 23		May 28. Governors Island, N. Y. May 16		Jun. 1. Playgrounds, Philadelphia, Pa. May	
May 29. Glencoe, Minn. May 23		Jun. 10. Washington, D. C. May 23		Adv. May 16, 23.		Jun. 2. Towboat, New Orleans, La. May	
May 29. Colorado Springs, Colo. May 23		Adv. May 23.		May 28. Milton, Ont. May 16		Adv. May 2 to 23.	
Jun. 1. Covington, Ga. May 9		Jun. 10. Republic, Wash. May 23		May 28. East Greenville, Pa. May 23		Jun. 2. Tunnel, Sultan, Wash. May	
Adv. May 9.		Jun. 12. Toledo, O. May 23		May 28. Rocky Mount, N. C. Apr. 25		Jun. 2. Vault Equip., Little Rock, Ark. May	
Jun. 1. San Jose, Cal. May 16		Jun. 15. Harlingen, Tex. May 23		May 29. Casper, Wyo. Apr. 25		Jun. 2. U. S. Govt. Supplies, Washington, D. C. May	
Jun. 1. Humble, Tex. May 16		Jun. 15. Mobile, Ala. May 16		May 29. Waterbury, Conn. Apr. 25		Jun. 2. Wall, Steubenville, O. May	
Jun. 1. Marysville, O. May 16		Adv. May 16, 23.		May 29. Millersburg, Ind. May 23		Jun. 2. Fish Hatchery, Granite Falls, Minn. May	
Jun. 1. Rome, Ga. May 23		Jun. 10. Beulah, Mich. May 23		May 29. San Francisco, Cal. May 23		Jun. 3. R. R. Spur, Akron, O. May	
Jun. 1. Lehigh, Que. May 23		Jun. 10. Washington, D. C. May 23		May 29. Sherburn, Minn. May 23		Adv. May 16, 23.	
Jun. 1. Uxbridge, Mass. May 23		Adv. May 23.		May 30. Glendale, Cal. May 23		Jun. 3. Derrick, Etc., Panama. May	
Jun. 2. Toronto, Ont. May 2		Jun. 10. Republic, Wash. May 23		May 30. Batavia, Ia. May 9		Jun. 4. Removal of Wreck, Wilmington, Del. May	
Adv. May 2.		Jun. 12. Toledo, O. May 23		May 30. New England, N. D. May 16		Jun. 4. Tower, San Juan, P. R. May	
Jun. 2. Lake Charles, La. May 16		Jun. 15. Harlingen, Tex. May 23		May 30. Kent, O. May 16		Jun. 6. Float, Newport, R. I. May	
Adv. May 16, 23.		Jun. 15. Mobile, Ala. May 16		May 30. Olive Hill, Ky. May 23		Jun. 8. Wall, Etc., Cincinnati, O. May	
Jun. 2. Aztec, N. M. May 23		Adv. May 16, 23.		Jun. 1. Medicine Hat, Alta. May 9		Jun. 9. Boilers for Towboat, St. Paul, Minn. May	
Jun. 2. Madera, Cal. May 23		Jun. 10. Beulah, Mich. May 23		Jun. 1. Listowel, Ind. May 16		Adv. May 23.	
Jun. 3. Jacksonville, Fla. May 9		Jun. 10. Washington, D. C. May 23		Jun. 1. Sanborn, Ia. May 16		Jun. 9. U. S. Govt. Supplies, Washington, D. C. May	
Jun. 3. Denby, Ind. May 23		Adv. May 23.		Jun. 1. Indianapolis, Ind. May 16		Jun. 9. Electric Railway, New York, N. Y. May	
Jun. 3. Denver, Colo. May 23		Jun. 10. Republic, Wash. May 23		Jun. 1. Ashland, Wis. May 16		Adv. May 23.	
Jun. 4. Charlotte, N. Y. Apr. 18		Jun. 12. Toledo, O. May 23		Jun. 1. Sioux City, Ia. May 23		Jun. 9. Brick Chimney, Toronto, Ont. May	
Jun. 6. St. Marys, O. May 23		Jun. 15. Harlingen, Tex. May 23		Jun. 1. San Diego, Cal. May 23		Adv. May 23.	
Jun. 6. Ritzville, Wash. May 23		Jun. 15. Mobile, Ala. May 16		Jun. 1. San Fernando, Cal. May 23		Jun. 11. Oil Handling Plant, Panama, ... May	
Jun. 6. Greer, Idaho. May 23		Adv. May 16, 23.		May 1. Long Island City, L. I., N. Y. May 23		Adv. May 23.	
Jun. 8. Sacramento, Cal. May 9		Jun. 10. Beulah, Mich. May 23		Jun. 1. Aurora, Ill. May 23		Jun. 12. El. Rys., New York, N. Y. May	
Jun. 8. Townsend, Tenn. May 23		Jun. 10. Washington, D. C. May 23		Jun. 1. Wards Island, N. Y. May 23		Adv. May 23.	
Jun. 8. Nebraska City, Neb. May 23		Adv. May 23.		Jun. 1. Ely, Minn. May 23		Jun. 12. Barges, Cincinnati, O. May	
Jun. 12. Cobleskill, N. Y. May 23		Jun. 10. Republic, Wash. May 23		Jun. 2. New York, N. Y. May 2		Adv. May 16, 23.	
Adv. May 23.		Jun. 12. Toledo, O. May 23		Jun. 2. Anacostia, D. C. May 9		Jun. 13. Locomotive Cranes, Boston, Mass. May	
Jun. 15. Yuma, Ariz. May 23		Jun. 15. Harlingen, Tex. May 23		Jun. 2. Woodville, Pa. May 16		Jun. 15. Improv. Lift, Etc., in Custom House, Astoria, Ore. May	
Adv. May 23.		Jun. 15. Mobile, Ala. May 16		Jun. 2. Steubenville, O. May 16		Jun. 15. Elevator, Wichita, Kan. May	
Jun. 16. Danielsville, Ga. May 23		Adv. May 16, 23.		Jun. 2. Kendallville, O. May 16		Jun. 15. Street Name Posts, Winnipeg, Man. May	
Jun. 16. Hamilton, Ala. May 23		Jun. 10. Beulah, Mich. May 23		Jun. 2. Ellwood, Ind. May 23		Jun. 16. U. S. Govt. Supplies, Washington, D. C. May	
Jun. 20. St. Boniface, Man. May 23		Jun. 10. Washington, D. C. May 23		Jun. 2. Mobile, Ala. May 23		Adv. May 23.	
PAVING AND ROADS.				Jun. 2. Granite Falls, Minn. May 23		Jun. 17. Sprinkling System in Interior Building, Washington, D. C. May 1	
May 26. Crookston, Minn. May 9		Jun. 1. Canal, Holly Hill, S. C. May 16		Jun. 2. Indianapolis, Ind. May 16		Jun. 20. Levee, New Orleans, La. May 1	
May 26. Baltimore, Md. May 16		Adv. May 16.		Jun. 3. Tipton, Mo. May 23		Jun. 22. Mailing Platform, Etc., Des Moines, Ia. May 1	
Adv. May 16, 23.		Jun. 3. Drainage and levee work, Quincy, Ill. May 23		Jun. 3. Chippewa Falls, Wis. May 23		Jul. 13. Culverts, Shakopee, Minn. May 1	
May 26. Columbus, O. May 16		Jun. 4. Levee, Garland, Ark. May 16		Jun. 3. Ft. Bliss, Tex. May 23		Jul. 15. R. R. Wk., Australia. May 1	
May 26. Belleville, N. J. May 16		Jun. 4. Levee, Washington, D. C. May 23		Jun. 4. Edwardsville, Ill. May 9		—Excavating and Concrete, Utica, N. Y. Apr. 1	
May 26. McKinney, Tex. May 23		Jun. 5. Drainage Canals, Cleveland, Miss. May 23		Jun. 4. Cedar Rapids, Ia. May 16		Adv. April 25, May 2.	
May 26. Whitehouse, O. May 23		Jun. 6. Reinforcing Dike, Vallejo, Cal. May 9		Jun. 4. Bexley, O. May 16			
May 26. Wilkes-Barre, Pa. May 23		Jun. 6. Dredge, Dallas, Tex. May 9		Jun. 4. Montclair, N. J. May 16			
May 26. Ottawa, Ont. May 23		Adv. May 9 to 23.		Jun. 4. Newark, N. Y. May 23			
May 26. Boston, Mass. May 23		Jun. 6. Dredging, Philadelphia, Pa. May 23		Jun. 4. Arkansas City, Ark. May 23			
May 26. Toronto, Ont. May 23		Jun. 8. Dredging, Ft. Moultrie, S. C. May 16		Jun. 4. Stockton, Cal. May 23			
May 26. Kansas City, Mo. May 23		Jun. 10. Irrigation, Malta, Mont. May 2		Jun. 4. St. Clairsville, O. May 23			
May 27. Highland Park, Ill. May 16		Adv. May 2 to 16.		Jun. 5. Center, O. May 16			
Adv. May 16, 23.		Jun. 10. Dike Wall, Binghamton, N. Y. May 23					
May 27. Paterson, N. J. May 16		Jun. 15. Dry Dock, Boston, Mass. Apr. 25					
May 27. London, O. May 23		Adv. Apr. 25 to May 9.					
May 27. New York, N. Y. May 23		Jun. 15. Machinery, Etc., Canal Locks, Seattle, Wash. May 9					
May 27. Long Island City, L. I., N. Y. May 23		Adv. May 9 to 23.					
Adv. May 23.		Jun. 16. Pier, Boston, Mass. May 23					
May 27. Ashland, O. May 23		Adv. May 23.					
May 28. Thief River Falls, Minn. May 16							
May 28. Sault Ste. Marie, Ont. May 16							
May 28. New Cumberland, W. Va. May 23							
May 28. Welland, Ont. May 23							
May 28. Tacoma, Wash. May 23							
May 28. Delaware, O. May 16							